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120 S. Last Chance Mall
HELENA, MONTANA 59601

LEWIS & CLARK
CITY-COUNTY HEALTH DEPARTMENT

Regulation No. 1979-1

A Regulation Governing The
On-Site Treatment Of Sewage

LOCAL
GOVT.
628.162
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HOW TO *APPLY* FOR A SEPTIC SYSTEM PERMIT
LEWIS & CLARK CITY-COUNTY HEALTH DEPARTMENT

I. *BEFORE* MAKING A *FORMAL* APPLICATION, *PLEASE DO* THE *FOLLOWING:*

OBTAIN the following information:

1. How large is the property (acres or sq. ft.)?
2. When was it surveyed?
3. Is it filed with the Clerk & Recorder? (Ask C & R if sanitary restrictions were placed on the COS or Plat.)
4. Become familiar with your ground so that groundwater, bedrock, slope, etc., can be discussed.
5. Do a percolation test if one has not already been done (a perc test is done on every new subdivision, this includes occasional sales, gifts to family members, and minor or major subdivisions). Use Department guidelines to conduct percolation test.
6. Decide who will be doing the installation. Ask us about Certified Installers.
7. Questions? -*STOP*- Call us at 442-6230. Ask!

II. *THEN* TO MAKE FORMAL APPLICATION, PROCEED AS FOLLOWS:

OBTAIN a *Site Evaluation Form, AND* then:

1. Transfer the information from I to the form as needed.
2. Complete form and return to Department with the approximate fee (see fee schedule).
3. Questions? -*STOP*- Call us, please!

III. *AFTER* I & II ARE COMPLETED, WE WILL REVIEW THE *SITE EVALUATION APPLICATION*. Review may be done in office or an on-site visit may be required.

1. If the site is approved, then proceed to step IV.
2. If denied, please contact us for a list of the options.

IV. *FINALLY* - YOU MAY MAKE APPLICATION FOR A CONSTRUCTION PERMIT. Please Note; once the permit is issued construction may proceed according to the Department minimum requirements. Some overall basic considerations are as follows:

1. If you are doing the work yourself - obtain a copy of the regulations and appendixes. Let us go over them with you.
2. All perforated pipe must be installed level.
3. No trench may be over 36" deep.
4. Clean gravel must be used which is no smaller than ½" or larger than 2½".
5. Septic tank must be concrete unless otherwise approved by the Department. *Minimum* capacity allowed is *900 gallons*.
6. The Department will make final inspection when gravel, pipe, and the paper or straw has been installed.
7. Be sure to go over the design concepts with the Sanitarians *before* beginning construction. Please obtain a copy of our complete regulations, which includes *minimum separation distances*.

(2/01/79cp)

A GUIDE to the REVISIONS for

Subsurface Treatment System Regulations 1977 - 1

Major changes and/or refinements:

1. A needs statement has been included - page 1.
2. The regulations have been broken down into seven major areas:
   a) Purpose
   b) Definitions
   c) Applicability
   d) Permits and Inspections
   e) Installers
   f) Compliance
   g) Effective date
3. Expanded list of definitions to include more relevant nouns.
4. Problems which we previously could not handle are now addressed.
   a) Have requirements for abandoned systems - Sec. 4.01, pg. 11.
   b) Have included a specific reference to changing the load on a system - Sec. 4.07, pg. 11.
   c) Have included a requirement that a person obtain a permit before any type of construction can begin on the lot - Sec. 1.07, pg. 3.
   d) Require connection to a public sewer in certain cases - Sec. 3.04, pg. 10.
   e) Require a 100% replacement area on all lots except for replacement systems - Sec. 4.10, pg. 13.
   f) Have dropped the section which made driving, building, etc., on the wastewater treatment system a violation of regulations. This concern is now addressed under the owner responsibility section - Sec. 4.12, part 8, pg. 20.
   g) Have outlined composting toilet requirements - Sec. 4.12, part 5, pg. 19.
   h) Address fill systems on a standard permit basis - Sec. 4.12, part 7, pg. 20.
   i) Address the problem of human occupancy prior to having an an approved treatment system - Sec. 4.08, pg. 13.
   j) Have removed the Health Officer from variance procedures. The applicant now makes the request directly to the Director of the Division - Sec. 4.07, pg. 12.
   k) Will allow only concrete tanks unless otherwise approved by the Department - Sec. 4.12, part 2a, pg. 15.
   l) Have included metric units.

5. The fee schedule is now on a handout separate from the main body of the regulations.
6. Selected sections of the regulations have been pulled from the regulations to be placed in appendixes.
   a) Septic Tank, etc., detailed requirements - Appendix A
   b) Diagrams - Appendix B
   c) Requirements for experimental treatment systems - App. C
   d) Proper care and maintenance of your own treatment system - Appendix D
   e) Certification requirements - Appendix E
7. The applicant, upon first contact, will receive the following as one handout.
   a) A sheet explaining the application procedures.
   b) A site evaluation form.
   c) A percolation test information sheet.
   d) The handout: Proper Care and Treatment of Your Own Septic System.
   e) Fee schedule.
   f) Cover sheet: The Need for Adequate Sewage Treatment Methods.
   g) (Possibly) The table indicating minimum separation distances.

(2/02/79cp)

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b) Diagrams - Appendix B

c) Requirements for experimental treatment systems - App. C

d) Proper care and maintenance of your own treatment system - Appendix D

e) Certification requirements - Appendix E

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c) A percolation test information sheet.

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e) Fee schedule.

f) Cover sheet: The Need for Adequate Sewage Treatment Methods.

g) (Possibly) The table indicating minimum separation distances.

(2/02/79sp)

RULES AND REGULATIONS PROVIDING FOR THE PROTECTION OF THE PUBLIC HEALTH, SAFETY AND WELFARE THROUGH THE CONTROL AND REGULATION OF THE APPLICATION, DESIGN, LOCATION, CONSTRUCTION, APPROVAL AND INSPECTION OF ON-SITE SEWAGE TREATMENT SYSTEMS, AND PRESCRIBING PENALTIES FOR VIOLATION THEREOF.

THE NEED FOR ADEQUATE SEWAGE TREATMENT METHODS

A major factor influencing the health of individuals where public sewers are not available is the proper treatment and disposal of human sewage. Many diseases such as dysentary, infectious hepatitis, typhoid and paratyphoid, and various types of diarrhea are transmitted from one person to another through the fecal contamination of food and water, largely due to the improper treatment and disposal of human waste. Not only are various diseases a problem, but chemical poisoning may also result due to sewage contamination. For this reason, every effort should be made to prevent such hazards. Sewage should be treated not just disposed of. No opportunity should exist for sewage contamination of water and food.

Safe treatment and disposal of all human and domestic wastes is necessary to protect the health of the individual family and the community and to prevent the occurrence of nuisances. To accomplish satisfactory results, such wastes must be treated and disposed of so that:

1. They will not contaminate any existing or future drinking water supply.

2. They will not give rise to a public health hazard or present the potential for hazard by being accessible to insects, rodents, or other possible carriers which may come into contact with food or drinking water.

3. They will not give rise to a public health hazard by being accessible to children.

4. They will not violate laws or regulations governing water pollution or sewage treatment/disposal.

5. They will not pollute or present the potential to contaminate any surface or ground waters.

6. They will not give rise to a nuisance due to odor or unsightly appearance.

These criteria can be best met by the discharge of domestic sewage to an adequate public or community sewerage system. Where the installation of an individual household sewage treatment and disposal system is necessary, the basic principles outlined in the following regulation manual on design, construction, installation, and maintenance shall be followed. When these criteria are met, and where soil and site conditions are favorable, individual sewage treatment/disposal systems can be expected to give satisfactory service if properly maintained by the owner. Experience has shown that

adequate supervision, inspection, and maintenance of all features of the system are required to insure compliance. Underground portions of the system shall be inspected before being covered to insure that necessary corrections can be made.

BE IT ORDAINED by the Lewis & Clark County Board of Health, State of Montana, as follows:

ARTICLE I

PURPOSE

Sections:

1.01 Authority
1.02 Title
1.03 Intent and Purpose
1.04 Application of Regulation
1.05 Scope
1.06 Regulations Mandatory
1.07 Construction Prohibited
1.08 Administration
1.09 Access Rights

1.01 AUTHORITY: Pursuant to the authority of R.C.M. 1947, Section 69-4509, Paragraph J (Powers and Duties of Local Board of Health), these regulations are hereby established as minimum requirements of the Lewis and Clark City-County Board of Health, governing sewage treatment systems.

1.02 TITLE: This shall be known and shall be cited as "The On-Site Sewage Treatment System Rules and Regulations of Lewis & Clark City-County Health Department.

1.03 INTENT AND PURPOSE: These Rules and Regulations are deemed necessary for the protection of the public health, safety, and welfare of the people of Lewis & Clark County, whereby control of the sources of environmental pollution and control of the sources of communicable disease is established by regulating the location of, the application for, design of, construction of, and approval of sewage treatment systems, and by regulating the disposal of sewage within Lewis & Clark County. No intent to conflict with State Department of Health and Environmental Sciences regulations is implied. In all cases where the masculine gender is used, it shall also include the female gender.

1.04 APPLICATION OF REGULATION: These Rules and Regulations shall apply to all areas of Lewis & Clark County.

1.05 SCOPE: The regulations apply to any person installing or responsible for installation of on-site sewage treatment systems, not specifically defined as a public sewage treatment system.

1.06 REGULATIONS MANDATORY: These Rules and Regulations shall be mandatory upon the construction of all new on-site sewage treatment systems, and the expansion or alteration of existing on-site sewage treatment systems, whether serving a residence, structure, or mobile dwelling unit from which human or other wastes are produced. This provision is to include changing the load on a system, hooking up to a system which had either been out of service for a time or never used; provided, however, that the rules and regulations shall not conflict with "community or public treatment systems" regulated pursuant to specific Montana State Statutory Provisions. These rules and regulations shall be mandatory upon all persons creating and disposing of sewage (any dwelling which has a pressured water system), and all persons constructing or altering sewage treatment systems within Lewis & Clark County; except as noted under 1.05.

1.07 CONSTRUCTION PROHIBITED: No person shall do construction on a lot when that construction is intended for occupancy by humans in which Section 1.06 would apply (see definition of Construction).

1.08 ADMINISTRATION: The Health Authority shall administer these regulations under the authority and requirements of R.C.M. 1947, Section 69-4509. As provided in R.C.M. 1947, Section 69-4509, fees may be set for administration of this program.

1.09 ACCESS RIGHTS: a) The Health Authority is hereby authorized and directed to make such inspections as are necessary to determine satisfactory compliance with this regulation. b) It shall be the duty of the owner or occupant of a property to give the Health Authority free access to the property at reasonable times for the purpose of making such inspections as are necessary to determine compliance with the requirements of this regulation. Nor shall any person molest or resist the Health Officer or his representatives in the discharge of his duty.

NOTE: This shall mean before, during and after the installation and final approval of a system.

ARTICLE II

DEFINITIONS

Sections:

2.01 Explanation
2.02 Shall
2.03 Approved
2.04 Bedrock
2.05 Board
2.06 Body of Water
2.07 Community or Public Treatment System
2.08 Construction
2.09 County

2.10 Cover
2.11 Curtain Drain (See figure #5)
2.12 Cut-man-made (See figure #6)
2.13 Department
2.14 Distribution Box
2.15 Dosing Tank
2.16 Dwelling
2.17 Effective Absorption Area (See figure #5)
2.18 Effluent Lift Pump
2.19 Escarpment (See figures #7 and #8)
2.20 Fill
2.21 Greywater
2.22 Groundwater - Seasonally High
2.23 Groundwater - Table
2.24 Health Officer
2.25 Impervious Layer (See figure #5)
2.26 Malfunctioning Sewage Treatment System
2.27 Person
2.28 Public Sewer System
2.29 Restrictive Layer (See figure #5)
2.30 Saturated Zone
2.31 Septic Tank
2.32 Septic Tank System
2.33 Sewage
2.34 Sewage Treatment System
2.35 Sewage System Designer
2.36 Subdivision
2.37 Surface Water
2.38 Suspended Solid
2.39 Test Pit
2.40 Treatment Field (See figure #4)
2.41 Treatment Field Trench (See figure #3)
2.42 Unsaturated
2.43 Unstable Landforms (See figures #9, #10, & #11)

2.01 When not inconsistent with the context, words used in the present tense shall include the future tense, and singular shall include the plural, and plural the singular.

2.02 The word "shall" denotes mandatory and the word "may" denotes discretionary.

2.03 "Approved" shall mean accepted by the designated Health Authority in writing.

2.04 "Bedrock" shall mean any geological formation which by its very nature has a low water holding potential (the material is either impervious or highly pervious to water). Due to lack of filtration, bedrock does not supply a sufficient degree of treatment. Generally bedrock appears as highly

fractured to slightly fractured original parent material. The degree of fine material and weathering will be used to determine final classification by this department.

2.05 "Board" shall mean the Lewis & Clark County Board of Health.

2.06 "Body of Water" shall mean any lake, river, stream, creek, pond, or other designation for water visible at any time on the surface of the ground in amounts greater than 1,000 cubic feet.

2.07 "Community or Public Treatment System" shall mean sewage systems which are owned or operated by city, town, municipal corporation, county, or state, or other ownership, approved by the State Department of Health, consisting of a collection system and necessary trunk lines, pumping facilities, and means of final treatment and disposal, and under permit from the State Department of Health.

2.08 "Construction" shall mean installation of power poles, drilling of wells or construction of dwellings.

2.09 "County" shall mean Lewis & Clark County, Montana.

2.10 "Cover" shall mean fill material that is used to cover a subsurface treatment area to a maximum depth of 18 inches.

2.11 "Curtain Drain" means a groundwater interceptor introduced upslope from a treatment field to interrupt and divert the course of shallow groundwater or surface water from the absorption facility. One may be required to be installed as a condition for approval of a subsurface sewage treatment system. (See figure #5)

2.12 "Cut-man-made" means a land surface resulting from mechanical land shaping operations where one or more impervious or restrictive layers intercept the cut surface and where the modified slope is greater than five (5) percent. It also means any other man formed slopes in excess of twenty-five (25) percent which do not intersect one or more impervious or restrictive layers. (See figure #6)

2.13 "Department shall mean the Lewis & Clark County Health Department, the Health Officer, or his authorized representative.

2.14 "Distribution Box" means a watertight structure which receives septic or other treatment facility effluent and distributes it concurrently into two (2) or more header pipes leading to the treatment area.

2.15 "Dosing Tank" means a watertight receptacle placed between a settling or septic tank or other treatment facility and a distribution box or treatment area, and equipped with an automatic siphon or pump designed to discharge treated effluent intermittently to a treatment field in amounts

proportioned to the area of the field. It should also provide a rest period between such discharges.

2.16 "Dwelling" means any structure, building, or any portion thereof which is used, intended or designed to be occupied for human living purposes including, but not limited to, houses, houseboats, boathouses, mobile homes, hotels, motels and apartments.

2.17 "Effective Absorption Area" means the sidewall area within a treatment trench or seepage trench from the bottom of the trench to a level two (2) inches above the distribution pipe. (See figure #5)

2.18 "Effluent Lift Pump" means a pump used to lift effluent from a septic tank or other treatment facility to a treatment area at a higher elevation than the septic tank or treatment facility.

2.19 "Escarpment" means any naturally occurring slope greater than twenty-five (25) percent which extends vertically six (6) feet or more as measured from the toe to top and which is characterized by a long cliff or steep slope which separates two (2) or more comparatively level or gently sloping surfaces. It may intercept one or more restrictive or impervious layers. (See figures #7 and #8)

2.20 "Fill" shall mean soil materials that have been displaced from their original location.

2.21 "Greywater" means any household sewage other than toilet wastes and includes but is not limited to, shower and bath waste water, kitchen waste water and laundry wastes.

2.22 "Groundwater - Seasonally High" shall mean the closest the water comes to the natural ground surface at any season of the year. The depth to the upper water surface shall be measured from the natural ground surface to the high water level in the soils or the upper zone of saturated soil. Minimum depth to groundwater may occur during ANY season of the year depending on local conditions.

2.23 "Groundwater - Table" shall mean the upper surface of groundwater in the zone of saturation of a geologic formation including the upper surface of a perched water table (not seasonally high).

2.24 "Health Officer" shall mean the appointed Director of the Lewis & Clark City-County Health Department.

2.25 "Impervious Layer" means a layer which prevents water or root penetration. In addition, it shall be defined as having a soil permeability of less than .06 inches per hour as outlined in the United States Department of Agriculture, Soil Conservation Service, Or-Soils-1, for that particular soil series. (See figure #8)

2.26 "Malfunctioning Sewage Treatment System" shall mean any sewage treatment system not properly performing in accordance with its design. It is a system causing a hazard to health by allowing such occurrence as: Sewage or effluent to break out onto the surface of the ground, ditches, or into bodies of water; backing up into toilets or sinks; or entering groundwater.

2.27 "Person" shall mean any individual, corporation, company, association, society, firm, partnership, joint stock company, or any branch of State, Federal, or local Government.

2.28 "Public Sewer System" shall mean a sewage disposal system that serves ten (10) or more families or twenty-five (25) or more persons for at least sixty (60) days out of the calendar year.

2.29 "Restrictive Layer" means a layer in the soil that because of its structure or low porosity does not allow water entering from above to pass through as rapidly as it accumulates. During some part of every year, a restrictive layer is likely to have temporarily perched groundwater accumulated above it. In addition, a restrictive layer has a soil permeability rating of two-tenths (0.2) inches per hour to six-hundredths (.06) inches per hour as outlined in the United States Department of Agriculture, Soil Conservation Service, OR-Soils-1, for that particular soil series. (See figure #5)

2.30 "Saturated Zone" means that part of the water-bearing material in which all voids, large and small, are filled with water under pressure greater than atmospheric, as defined by the U.S. Geological Survey.

2.31 "Septic Tank" shall mean a watertight receptacle which receives the discharge of sewage from a building sewer. The tank shall be designed and constructed to permit separation of sinking and floating solids from the liquid, detention and digestion of the organic matter prior to discharge of the liquid portion. (See figure #2)

2.32 "Septic Tank System" shall mean the process of utilizing a watertight receptacle into which raw sewage is introduced for the purpose of primary treatment, followed by the discharge of the resultant effluent into a system of subsurface treatment and disposal.

2.33 "Sewage" shall mean the water-carried human or domestic waste from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and other wastes as may be present.

2.34 "On-Site Sewage Treatment System" shall mean any systems of piping, treatment devices, or other facilities not connected to a public sewer system that convey, store, treat, and dispose of sewage, excluding public facilities. (See figure #1)

2.35 "Sewage System Designer" shall mean any person who with or without reimbursement is engaged to test the depth of permeable soil and its percolative capacity, and/or design a sewage treatment system, and/or supervise, and/or inspect the installation as meeting his design, and/or shall submit necessary as-builts or other pertinent data as required by the Health Authority.

2.36 "Subdivision" shall mean a division of land, as defined in R.C.M. 1947 now, or as hereafter amended.

2.37 "Surface Water" shall mean any body of water, whether fresh or marine, or watercourse, including lakes, impoundments, and streams.

2.38 "Suspended Solids" means solids in the sewage that can be removed readily by standard filtering procedures in a laboratory and reported as milligrams per liter (mg/l), and defined by state law under the Public Drinking Water Standards.

2.39 "Test Hole" means an open pit dug to sufficient size and depth to permit thorough examination of the soil to evaluate its suitability for subsurface sewage treatment and disposal. A pipe installed in a test hole and backfilled will be used to monitor groundwater depth. Test holes shall be dug to a minimum depth of seven (7) feet. (NOTE: A test hole is not to be used for a percolation test.)

2.40 "Treatment Field" shall mean a system of treatment/disposal trenches or a seepage trench or system of seepage trenches. (See figure #4)

2.41 "Treatment Field Trench" means a ditch or trench with vertical sides and a substantially flat bottom with a minimum of twelve (12) inches of clean, coarse filter material into which a single distribution line has been laid. The trench is backfilled with a minimum of eighteen (18) inches. (See figure #3)

2.42 "Unsaturated" means the zone between the land surface and the water table. This zone contains liquid water under less than atmospheric pressure. Parts of the zone, interstices, particularly the small ones, may be temporarily or permanently filled with water.

2.43 'Unstable Landforms" means areas showing evidence of mass downslope movement such as debris flows, landslides, rockfalls, and hummocky hill slopes with undrained depressions up-slope. Unstable landforms may exhibit slip surfaces roughly parallel to the hillside; landslide scars and curving debris ridges; fences, trees, telephone poles which appear tilted; and tree trunks which bend uniformly as they enter the ground. (See figures #9, #10, and #11)

ARTICLE III

APPLICABILITY

Sections:

3.01 Applicability
3.02 Other Types of Treatment/Disposal Units
3.03 No discharge to Ground Surface Waters or Upon Ground Surface
3.04 Connection to Public Sewer System

3.01 APPLICABILITY: These regulations shall apply as outlined under Section 1.06 except as noted:

1. These regulations shall not apply to construction of new systems for which a currently valid permit was issued prior to the effective date of these regulations.

2. Systems to be installed on lots, parcels, or tracts which have undergone state subdivision review shall conform to current county sewage regulations and the state laws in effect at the time of approval, whichever is more stringent.

3.02 OTHER TYPES OF TREATMENT DISPOSAL UNITS: Units other than septic tanks or devices that can function as septic tanks with subsurface treatment/disposal systems, may be used but only with prior approval of the Health Authority in accordance with the procedure established in Section 4.07 of these regulations.

3.03 NO DISCHARGE TO GROUND SURFACE WATERS OR UPON GROUND SURFACE:

1. No sewage shall be discharged into the ground, on to the ground surface, or into a surface water without having passed through a treatment system approved by the Health Authority.

   (a) Subsurface sewage treatment system shall not be permitted in areas where a minimum separation of four (4) feet between the bottom of the treatment field trench and the maximum seasonal groundwater elevation or impermeable layer cannot be maintained. Minimum trench depth allowed is 12 inches, thus a minimum of five (5) feet is required between the maximum seasonally high ground water level and the natural ground surface. The Health Authority shall require increased vertical separation as needed to protect health when the aquifer is used for a potable water supply. Such information shall be supplied by

QUALIFIED soils scientists, hydrologists, and registered sanitarians. Reduction may not conflict with State Subdivision Laws.

(b) Subsurface sewage treatment systems shall not be permitted to areas of fractured rock or excessively permeable material where it is likely that action of the soil profile will be ineffective in retaining and removing substances having an adverse effect on groundwaters.

3.04 CONNECTION TO PUBLIC SEWER SYSTEM:

1. Connection of any new dwelling unit or other premises where sewage originates shall be made to a public sewage system where there is an adequate sewer within 200 feet of the dwelling or other facility to be served, and such connection is permitted by the sewer utility for existing systems. Such connection shall be made and use of the individual sewage treatment system discontinued when repair or replacement of the individual sewage treatment system is required or as directed by local ordinances whichever is sooner.

2. If the distance between the facility to be served and an adequate public sewer is greater than 200 feet, and where the anticipated sewage flow is greater than 1,000 gallons per day, connection shall be made thereto if the Health Authority determines that a connection is feasible and such connection is permitted by the sewer facility.

3. Where connection to public sewer is required, the same shall be made in accordance with rules, regulations, and resolutions of the public sewer utility providing sanitary services: PROVIDED, HOWEVER, that if the public sewer utility's requirements are less restrictive, subsection 1 and 2 of this Section shall apply.

ARTICLE IV

PERMITS AND INSPECTIONS

Sections:

4.01 Permit
4.02 Permits for Failed Systems
4.03 Application for Site Evaluation
4.04 Permit Application
4.05 Review of Application: Approval/Denial
4.06 Issuance of Permit

4.07 Denial of Permit: Experimental System
4.08 Construction - Inspection
4.09 Emergency Application
4.10 100% Replacement Area
4.11 Location of System
4.12 Design

4.01 PERMIT: No person shall install a new sewage treatment system, nor perform alterations on existing systems, make any load changes, extensions, relocation, repairs, or hook-up to a system without a valid individual sewage treatment system permit for the specific work indicated on the permit. Permits for alterations or repairs shall be so identified. NOTE: An abandoned tank for which a new permit was issued must be either removed or filled with solid material.

4.02 PERMITS FOR FAILED SYSTEMS: Replacement of failed systems. Permit will be issued for replacement of failed systems using the best available technology as determined by the Department. Every attempt shall be made to improve over the existing conditions and to bring the system into compliance with current county regulations.

4.03 APPLICATION FOR SITE EVALUATION: All persons proposing to install, prepare, renovate, expand, or alter a new or existing sewage treatment and disposal system shall make application for a site evaluation at the Environmental Health Division. Review (including an on-site inspection, if deemed necessary) will be completed within ten (10) days of receipt of said application. All information requested on the application must be supplied in order for this Department to begin review. Incomplete applications will be denied, but may be resubmitted at the convenience of the applicant. SPECIAL NOTE: One site evaluation and one percolation test may be required for each lot undergoing subdivision review.

4.04 PERMIT APPLICATION: Application may be made for an on-site sewage treatment system construction permit following completion of a site evaluation. If the site evaluation determines the site to be unsatisfactory for proper sewage treatment, the applicant must present technical data from qualified professional engineers, soils scientists or other persons deemed qualified by the Department. Such data must substantiate that the site is acceptable for the proposed system. (Sizing of the system is discussed under Part 3, Section 4.12)

4.05 REVIEW OF APPLICATION: The Environmental Health Division shall review the application and material provided by the applicant and respond within ten (10) days of the day of filing of the application with the Environmental Health Division. The response shall be in the form of either an approval or denial of the application. In the event that the Department believes that the application would be acceptable upon the performance of designated modifications (generally only applicable to subdivisions established prior to 1961), it shall deny the application, consult with the applicant concerning the willingness to submit to such modifications, and,

in the event the applicant agrees to the modifications, the Environmental Health Division may then approve or deny the application based upon the modified proposal. Such action and modification must be indicated in writing. Raised drainfields using a minimum trench depth of twelve (12) inches is considered under alternative systems, Section 4.11, part 7, Raised Drainfields.

4.06 ISSUANCE OF PERMIT: In the event the Environmental Health Division approved the application or modified application, it shall issue a permit and a green tag to construct the sewage treatment system in accordance with the proposed plan. The green tag must be conspicuously posted at the site of construction by a weatherproof means of display, and shall remain on the site until the completion of the performance of the work. The permit shall be valid for a period of 365 days.

4.07 DENIAL OF PERMIT: VARIANCES; EXPERIMENTAL SYSTEMS: In the event that a permit for a subsurface treatment system as outlined under Sections 4.04 and 4.11 is denied, the following options are available to that person.

1. Request for Variance:

   (a) A written request for variance may be made to the Environmental Health Division Director (Supervising Sanitarian) for a hearing before the Board of Health. Request must be made ten (10) days prior to the scheduled Board of Health meeting. The burden of proof is upon the applicant to show that the variance will not adversely affect or injure adjacent properties, will not conflict with the purpose of these regulations, or rules and regulations of the State Department of Health and Environmental Sciences, and will not adversely affect the health of any person. After receiving a request of appeal, the Environmental Health Director will include the request on the Board of Health agenda. The Board of Health, upon notification by the Environmental Health Director of such request, shall within thirty (30) days either deny the appeal or set a date for a hearing. If requested by the applicant or deemed necessary by the Board of Health, a public hearing shall be held. The meeting may be conducted by a majority of the Board or by a hearings officer pursuant to Department policy of December 30, 1976.

   (b) The Board may at their discretion resolve to permit installation of a system which does not comply with the requirements of these regulations.

   (c) Action taken by the Board of Health concerning the disposition of any permit shall be considered final.

2. Experimental Systems Application: The applicant must make written application to the Environmental Health Division for an experimental system permit as outlined under Appendix C. Only a limited number of experimental system permits will be issued.

4.08 CONSTRUCTION - INSPECTION: The applicant may commence construction on receipt of the permit. (See Certification Program in Section 5) Prior to the backfilling of the system IT SHALL BE THE RESPONSIBILITY OF THE applicant or permitee to notify the Health Autority twenty-four (24) hours in advance of the expected completion time for the purpose of inspection to determine compliance with these regulations. Requests for inspection shall be for normal work week hours, excluding; Saturdays, Sundays, and holidays. Failure to POST THE GREEN TAG at the site of construction prior to beginning construction shall be constituted grounds for considering suspension of the installers license and certification. In the event the Health Authority finds the systems in non-compliance, the reasons for disapproval shall be listed on the permit. All necessary corrections must be completed and another inspection held before approval may be given by the Health Authority. (No backfilling shall occur until the sewage treatment system has been inspected and approved. Backfilling shall be done within a reasonable period of time after final approval to prevent damage from tampering, weather, or vandalism. The system must be backfilled before it can be used. Except in replacement or repair cases, at no time shall the premises be used or occupied until an approved sewage treatment system is in operation. Following final approval, no additional connections may be made that will increase the design flow or load on the system without prior approval of the Health Authority.

4.09 EMERGENCY APPLICATION: Application for sewage treatment system permits to repair malfunctioning systems may be granted by the Department on a contingency basis. Such an emergency repair permit (standard permit designated as emergency repair) would apply ONLY to the septic tank and NOT the treatment field. The Environmental Health Division will thereby authorize emergency repairs immediately; provided, however, an inspection shall be performed as set forth in Section 4.06 of these regulations.

4.10 100% REPLACEMENT AREA: On lots intended for new construction sufficient area will be required to provide for 100% replacement of the original system in the event that a failure occurs. In all cases, requirements of Section 4.11 and 4.12 be met.

4.11 LOCATION OF SYSTEM:

1. The minimum distance for location of the various component parts of the sewage treatment system is measured horizontally (except as noted) and shall comply with the following table:

TABLE I

MINIMUM SAFE DISTANCE
(In Meters and Feet)

FROM	TO SEPTIC TANK		TO TREATMENT FIELD	
Well	50'	15.25m	100'	30.50m
Streams, lakes, irrigation canals, or other surface water sources	50'	15.25m	100'	30.50m
Property lines	10'	3.05m	5'	1.5 m
Foundation walls, building	5'	1.5 m	10'	3.05m
Water lines	10'	3.05m	10'	3.05m
Trees*	10'	3.05m	10'	3.05m
Treatment Fields	5'	1.5 m	6'	1.83m
High Ground H_2O** (measured vertically)	----------		5'	1.5 m
Bedrock (measured vertically)			6'	1.8 m
Open ditches or cuts down hill side	(See Appendix B, Figure 8)			

* Separation from trees is subject to approval by the Health Authority.
** Minimum separation allowed between the natural ground surface and bedrock or groundwater is six (6) feet. A reduction in separation can be allowed when no State subdivision laws are in conflict AND the site evaluation justifies such a reduction. In NO case shall it be less than five (5) feet. The installation and use of cesspools or seepage pits for disposal of sewage is not permitted.

(a) In soil types that are classified as having excessive drainage characteristics in accordance with Section 4.11, the distance from any water supply or surface water, and/or the size of the system may be increased by the Health Authority.

(b) Setbacks from surface waters shall be measured from mean high water tables.

2. The area to be used for sewage treatment shall be selected and maintained so that it is free of buildings, driveways, livestock confinements, or any structures. The area shall not be subject to vehicular traffic and shall not be covered with an impervious surface.

3. The sewage treatment system shall not be located in an area where surface water will accumulate. Provisions shall be made to minimize flow or accumulation of surface water over the area.

4. No part of a sewage treatment system shall be constructed within 100 feet of the 100 year floodway as established by the Department of Natural Resources of the Montana Department of Health and Environmental Sciences as outlined under ARM 16-2.14(10)-S14340.

4.12 DESIGN: Standards for Septic Tank and Treatment Field Construction.

1. GENERAL

(a) The system shall be designed to receive all sewage and domestic waste from the building served unless otherwise approved by the Health Authority. Footing or roof drains shall not enter the sewage treatment system.

(b) Location of the system shall conform to Section 4.11.

(c) Detailed requirements of system construction are listed in Appendix A.

2. Septic Tank Requirements:

(a) Tank must be concrete. (See Appendix A & B, Figure 2)

(b) All tanks must be from an approved manufacturer or an individual may obtain tank approval upon submittal of acceptable plans to the Department.

(c) Liquid capacity for residential dwellings shall be based upon the number of bedrooms in the dwelling served and shall conform to Table II. Liquid capacity for industrial and commercial establishments shall adhere to the Manual Of Septic Tank Practice by the U.S. Department of Health, Education and Welfare. NOTE: For each additional bedroom, add 250 gallons.

(d) Sewage shall be conducted to and from the tank by a solid pipe capable of withstanding heavy loads exerted from equipment.

(e) No couplings will be allowed between the tank and the house where the coupling will be in fill material (i.e. the space created from the basement excavation).

TABLE II

MINIMUM LIQUID CAPACITY FOR SEPTIC TANKS

NUMBER OF BEDROOMS	GALLONS REQUIRED
2-4	1,000 minimum capacity

(f) See Appendix A for more details. (Provided upon request)

3. Treatment Field Requirements:

(a) The minimum length of perforated treatment field pipe and trench needed (based on two (2) square feet of absorption area per lineal foot of trench) will be determined from results of the site evaluation. That evaluation considers the soils, topography, percolation tests and other related data. In most cases, percolation tests will be required but may be waived by the Health Authority. Each system will be treated as an individual installation and will be evaluated as such according to the site evaluation procedure. (A more complete discussion of sizing criteria may be obtained from the Department upon request).

(b) General installation comments:

(i) Treatment fields laterals shall be installed level.

(ii) Effluent from the septic tank shall be conducted to the treatment field through a watertight line with a grade of no more than six (6) inches per 100 feet, unless proper baffling is installed. Tees, wyes, or other distributing devices may be used as baffles.

(iii) Bottoms of trenches shall be level.

(iv) If a distribution box is used, it shall be of sufficient size to accommodate the necessary field lateral lines. See Appendix A for D-Box requirement details.

(c) Treatment fields are prohibited on slopes in excess of 25%. Construction on slopes in excess of 15%, but not

greater than 25% may be allowed if appropriate design is provided and subsoil profiles indicate no restrictive layers.

(d) Bedding material shall consist of washed gravel, stone or similar material of equivalent strength and durability. It may vary from ½ inch to 2½ inches and shall completely encase the perforated pipe. Stone shall be placed level in the trenches, so that a full 2" of stone exists from side to side of trench above the pipe.

(e) Treatment Field Protection:

(i) An effective barrier such as untreated building paper, straw or any other porous material shall be placed prior to final inspection, over the bedding material to prevent infiltration of backfill. (See Section 4.07 on installer obligations for inspection).

(ii) All treatment field lateral ends shall be capped.

(iii) All pipe for the treatment system shall comply with National Plumbing Code ASA-A408 or the uniform plumbing codes, whichever applies.

(iv) Pipe used under driveways or other areas subject to heavy loads, shall be installed to withstand the imposed loads and shall be watertight.

(v) Pipe shall be smooth walled internally, durable in cold weather and have two (2) sets of holes approximately 5:00 to 7:00. Holes shall be placed toward the bottom of the trench. (See Figure 4, Appendix B)

(f) Treatment Field: Table of Minimum and Maximum Distances.

SUBSURFACE ABSORPTION FIELD CONSTRUCTION DETAILS FOR STANDARD SYSTEMS

ITEM	UNIT	MAXIMUM	MINIMUM
Length of trenches*		100 30.50m	
Width of trenches		24" .61m	18" .46m
Trench spacing (wall to wall)			6' 1.83m
Depth of trenches (bottom)**		36" .91m	24" .61m
Slope of treatment field lines		0%	0%
Depth of bedding material			
Under pipe		12" .31m	6" .15m
Over pipe		6" .15m	2" .051m
Size of bedding material		2.5" .06m	0.5" .13m
Depth of backfill over bedding material		24" .61m	18" .46m

* Length of Trenches: No trench shall be over 100' (30.50m) in length. More specifically, no trench shall be over 100' (30.50m) as measured from the end of the solid pipe to the furthest point in the treatment field system.

** Depth of trenches (bottom): Care should be taken before digging trenches to insure that the maximum depth of the trenches at any point along the trenches not be over 36" (.91m).

4. General construction of pit privies shall conform with specifications set forth in Circular #13, Montana State Department of Health and Environmental Sciences.

(a) Pit privies shall not be installed closer than 100' from any stream, lake, well or other water supply.

(b) Pit privies shall be constructed so as to prevent any contaminants from reaching groundwater. Minimum separ-

ation between the pit bottom and seasonal high groundwater shall be determined from an examination of soils in the bottom of the pit. In no case shall it be less than three (3) feet. This could best be accomplished by use of a test hole dug with a backhoe. Hole could then be used for a pit privy.

(c) The pit privy may only be used for disposal of body wastes and putricipal solid waste.

(d) A watertight vault will be required where, in the Health Authority's opinion, the waste from the pit privy potentially could pollute groundwaters or cause a nuisance.

5. The Department may permit for composting toilets under the following conditions:

(a) No pressure water system shall be installed in the dwelling and the requirement of Part (e) below has been met.

(b) An approvable evaluation has been done, indicating the site is acceptable for standard systems if a pressure water system is to be installed.

(c) If the dwelling is to have greywater discharge, as generated by a pressure water system, then a standard system will be required.

(d) The applicant may apply for either a variance or an experimental system if the site is deemed unsuitable for a standard system.

(e) In the event a composting toilet is permitted as outlined under Part (a) above, the conditions of approval shall be recorded on the deed, COS or plat.

(f) The applicant supplies the Department with the plans and specifications for the composting toilet and the reasons for wanting such a unit.

(g) It must be understood that in the event a permit is issued for a composting toilet that any restrictions as mentioned above will remain in effect (i.e., no pressure water systems, no indoor plumbing).

6. Systems Not Allowed:

(a) The installation and use of cesspools or seepage pits for disposal of sewage is not permitted.

(b) Sewage holding tanks shall not be used as a permanent method of sewage disposal for residential dwelling units. The Health Authority may allow holding tanks on an interim use basis to handle emergency situation or to correct existing problem systems.

(c) No subsurface treatment system will be allowed in newly placed fill material. The Health Authority may allow installation of a subsurface treatment system in fill that has been in place an acceptable period of time and has stabilized to the point where site conditions and soil tests show the site to be satisfactory to allow full compliance with provisions of these regulations. Generally a minimum of one (1) year will be required after fill has been laid.

7. Raised Drainfields are an Approved Alternative to a Standard Subsurface Treatment System. The Health Authority may allow or require installation of a raised treatment field under the following conditions: NOTE: Minimum separation allowed between the natural ground surface and bedrock or groundwater is six (6) feet. A reduction in separation can be allowed when no State subdivision laws are in conflict AND the site evaluation justifies such a reduction. In NO case shall it be less than five (5) feet.

(a) Soil conditions dictate the need.

(b) A minimum trench depth of twelve (12) inches shall be allowed.

(c) A minimum of four (4) feet separation shall be maintained between the bottom of the trench and groundwater, bedrock, or any other impervious layer.

(d) No State subdivision laws are violated.

8. It shall be the responsibility of the septic system owner to properly maintain and operate the subsurface sewage treatment system approved by this Department. Please see the Department handout (Appendix D) on proper care and operation of a subsurface treatment system.

ARTICLE V

INSTALLERS

5.01 CERTIFICATION OF INSTALLERS: Installers of individual subsurface sewage treatment systems may be certified by the Health Authority. Certification shall mean that the installer has demonstrated, by a passing grade on a written examination, that he/she has sufficient knoweldge of these regulations so as to perform the functions of an installer in such a manner that complies with these regulations. Specific details of this program may be found in Appendix E.

ARTICLE VI

COMPLIANCE

Sections:

6.01 Human Occupancy
6.02 Malfunctioning System - Vacation of Premises
6.03 Compliance in General
6.04 Adherence to Approved Plan
6.05 Disposal of Septic Tank Waste
6.06 Penalties for Violations
6.07 Injunction
6.08 Waiver of Regulations
6.09 Moratorium on Issuance of Permits
6.10 Non-liability of County
6.11 Validity
6.12 Repealer
6.13 Evaluation and Revision

6.01 HUMAN OCCUPANCY: It shall be unlawful to occupy or allow to be occupied (except as noted under Sections 4.07 and 6.02) any dwelling unit, commercial structure, recreational development, or other structure without one of the following systems in proper working order.

(a) A public sewerage system.

(b) A sewage treatment system approved through earlier ordinances or resolutions of the county.

(c) A sewage treatment system installed prior to the enactment of any county ordinance or resolution governing the same.

(d) Other sewage treatment systems which are approved by the Environmental Health Division.

6.02 MALFUNCTIONING SYSTEM - VACATION OF PREMISES: It shall be unlawful to permit use or maintain a malfunctioning sewage treatment system. Upon the Environmental Health Division's discovery of the existence of such a system, it shall give written notice of violation to the record owner and/or occupant of the premises. Upon failure to adequately repair and restore the sewage treatment system to proper working order within thirty (30) days of the giving of notice, the premises shall be vacated within a reasonable time, but generally not more than fifteen (15) days and failure to do so shall constitute an additional violation.

6.03 COMPLIANCE IN GENERAL: After the effective date of these regulations, it shall be unlawful to construct, install, or repair any sewage treatment system without strict compliance with the provisions of these regulations.

6.04 ADHERENCE TO APPROVED PLAN: Once a proposed system receives Department approval and a permit is issued, no alteration or departure from such Department approved plans shall occur without the written approval of the Department. In the event of installation, construction, and/or repair not in accordance with the Department's approved plans, and in the event such departure in any respect fails to meet the minimum standards imposed by these regulations, this departure shall constitute a violation.

6.05 DISPOSAL OF SEPTIC TANK WASTE: The contents of a septic tank or other treatment devices shall be disposed of only in conformance with our current pumper regulations.

6.06 PENALTIES FOR VIOLATIONS: Violation of any of the provisions of these regulations shall constitute a misdemeanor and shall be punishable by a fine of not more than $250 or imprisonment in the county jail for not more than ninety (90) days, or by both such fine and imprisonment.

1. For the purpose of these rules and regulations, each section violated shall constitute a separate and distinct offense, and each days' violation shall constitute a separate and distinct offense, and shall be punishable as such.

6.07 INJUNCTION: The prosecuting attorney shall commence an action to restrain and enjoin acts in violation of these regulations, and violation of any such injunction shall be subject to punishment by the issuing court.

6.08 WAIVER OF REGULATIONS:

1. In any case where a provision of these regulations is found to be in confict with a provision of any zoning, building, fire, safety, or health ordinance or code of Lewis & Clark County existing on the effective date of these regulations, the provision shall prevail, which in the judgment of the Health Authority establishes the higher standard for the promotion of the health and safety of the people.

2. If any part of these regulations should be declared invalid for any reason, such invalidity shall not affect the remaining portions which shall remain in full force and effect.

6.09 MORATORIUM ON ISSUANCE OF PERMITS: The Board of Health may declare a specific area of the county to be unsuitable for sewage treatment systems. In such event, the Board shall hold a hearing upon the recommendation, such hearing to be advertised in the official newspaper, and/or in a newspaper of circulation within the affected area. Such advertisement shall include a common description of the area affected by the recommendation. Should the Board adopt the recommendation of the Department, thereafter, no sewage treatment permit applications shall be processed by the Department until such time as the moratorium is lifted.

6.10 NON-LIABILITY OF COUNTY: Issuance of a permit and certification of construction for compliance to standards herein does not constitute a warranty of the life of the system.

6.11 VALIDITY: In the event any section, subsection, or other portion of these regulations is for any reason held invalid or unconstitutional by a court of competent jurisdiction, such section, subsection, or portion shall be deemed a separate provision of these regulations and such holding shall not affect the validity of the remaining portions of these regulations.

6.12 REPEALER: All rules, regulations, resolutions, and ordinances of Lewis and Clark County in conflict with these regulations are hereby repealed, and the more stringent shall apply.

6.13 EVALUATION AND REVISION: These regulations shall be reviewed and evaluated annually. Revision shall be made as needed to insure proper administration and to allow for newer methods of sewage treatment/disposal.

ARTICLE VII

EFFECTIVE DATE

Section:

7.01 Effective Date

These regulations shall be in full force and effect on the

_____day of _____, 19____.

LEWIS AND CLARK CITY-COUNTY BOARD OF HEALTH

LESTER H. LOBLE, II, CHAIRMAN

ROBERT R. JOHNSON
City-County Health Officer

1/18/79 LW/mf

ON-SITE SEWAGE TREATMENT SYSTEM SIZING GUIDE
LEWIS AND CLARK COUNTY

The required size of any particular subsurface treatment field shall be determined from the evaluation of soils classification, permeability and/or perc rates, number of bedrooms, depth to a saturated layer, depth to bedrock, and any other relevant environmental information.

If perc rates and/or on-site soils information is not available, the Department may accept SCS Unified Soils Classifications from qualified soils scientists as the sole basis for determing treatment field size.

Seven field sizes will be used according to the following chart. (The rational for the larger field requirement on soils types 1 (2) is that distribution of the effluent over a larger area will hold the effluent in the upper soil strata, thus reducing the chance of rapid movement to ground water or bedrock without proper treatment. A larger than normal field is needed for soils type 7 (6) because tight soils show less ability to handle waste water properly than the perc rate indicates.)

SOIL TYPE	PERCOLATION RATE	GENERAL SOIL CLASS	SQUARE FT. BED
1.	Less than 1 inch	Cobbles, gravel	(See Below)
2.	1-5 min/inch	Gravel, Coarse sand, some cobbles	150
3.	6-15	Sandy soil, some loam, some gravel	188
4.	16-30	Finer sand and/or silt, few gravel	300
5.	31-45	Mostly silt or clay, some sand and shat clay	350
6.	46-60	Silt or clay	400
7.	60		

In the event that soil texture proves very poor then the size of the system may be increased by the Health Authority.

In soils with excessive drainage, perc rates less than 1 min/inch the size of the field will be based on soil type 2 classing. However, a 2 inch sand layer will be required in the bottom of the trench prior to placement of the bedding material and pipe.

For systems not specifically subsurface, sizing will be in accordance with most recent accepted technology and data.

January 18, 1979

LEWIS & CLARK CITY-COUNTY HEALTH DEPARTMENT

Steps to applying for and obtaining an on-site wastewater treatment permit.

1. Gather improtant information.
   a) How large is the property (acres or sq. ft.)?
   b) When was it surveyed?
   c) Is it filed with the Clerk and Recorder? (Ask C & R if sanitary restrictions were placed on the COS or plat).
   d) Become familiar with your ground so that groundwater, bedrock, slope, etc., can be discussed.
   e) Do a percolation test if one has not already been done (a perc test is done on every new subdivision, this includes occasional sales, gifts to family members, and minor or major subdivisions). Use Department guidelines to conduct percolation tests.
2. Obtain a site evaluation application.
   a) Transfer some of the information gathered above to this form, part A.
   b) Complete form and return to the Department with appropriate fee - see fee schedule.
3. If the site is approved, application may be made for a construction permit.
4. Once the permit is issued construction may proceed according to Department minimum requirements. Some overall basic considerations are as follows:
   a) All perforated pipe must be installed level.
   b) No trench may be over 36" deep.
   c) Clean gravel must be used which is no smaller than ½" or larger than 2½".
   d) Septic tank must be concrete unless otherwise approved by the Department. Minimum capacity allowed is 900 gallons.
   e) The Department will make final inspection when gravel, pipe and the paper or straw has been installed.
   f) Be sure to go over design concepts with the sanitarians before beginning construction. Please obtain a copy of our complete regulations, which includes minimum separation distances.

FEE SCHEDULE

	Certified Installers	Non-Certified
Application for Site Evaluation (includes on-site investigations)	$25.00	$25.00
Permits for Installation	5.00	30.00
Total Cost	$30.00	$55.00

APPENDIX A

1. Septic Tank Requirements.

   (a) Location shall be as to provide not less than the state distances in Table I.

   (b) Any tank or compartment thereof shall be so designed to maintain a liquid depth of thirty (30) inches minimum and seventy-two (72) inches maximum.

   (c) No tank or compartment thereof shall have an inside horizontal dimension less than two (2) feet.

   (d) A MULTI-COMPARTMENT TANK IS RECOMMENDED. No tank shall have more than four (4) compartments. The second compartment shall have a minimum liquid capacity at least equal to one-third (1/3) of the capacity of the first compartment.

   (e) Liquid capacity shall be based upon gallons per day load in non-residential structures.

   (f) Inlet and outlet connections of the tank and of each compartment shall be submerged or baffled so as to obtain effective retention of scum and sludge. (See Figure 2, Appendix B)

   (g) The scum storage area shall equal twenty (20) percent of the total liquid depth and shall be measured from the top of the liquid level to the top of the inlet and outlet baffles excluding the one (1) inch air space at the top of the tank. In no case shall this area be less than six (6) inches.

   (h) The inlet baffles or submerged invert pipe shall extend six (6) inches below the liquid surface and above the liquid surface as required in Figure 2, Appendix B.

   (i) The outlet baffle or submerged invert pipe and the baffles or submerged pipes between compartments shall extend below the liquid a distance equal to forty (40) percent of the liquid depth. They also shall extend above the liquid to provide for scum storage as required in Figure 2, Appendix B. In no case shall they be less than six (6) inches above the liquid level.

   (j) There shall be at least one (1) inch difference between the underside of the top of the tank and the top of the inlet and outlet pipes, baffles, and compartment partitions to provide the required ventilation of the tank and treatment field through the main building stack.

(k) The bottom of the tank inlet shall be not less than three (3) inches above the flow line (bottom of the tank outlet).

(l) Construction of the tank shall be such as to assure its being watertight and prevent the entrance of rainwater, surface drainage, or groundwater.

(m) The tank shall be constructed of concrete (unless otherwise approved by the Health Authority) to produce a sound, durable material not subject to excessive corrosion or decay.

(n) Adequate access to each compartment of the tank for inspection and sludge removal shall be provided by a manhole or removable cover (minimum of 15" x 24"). The inlet and outlet baffles shall each have a handhole in order to provide easy access for cleaning.

(o) Where the top of the tank is located more than eighteen (18) inches below the finished grade, manholes shall be built up to within eight (8) inches of the finished grade.

(p) The Department shall review and approve specific specification and manufactures of tanks prior to sale to the public.

2. Dosing Tanks.

(a) Siphons and pumps. Siphons and pumps shall be of the alternating type when the total volume of waste to be disposed of exceeds two thousand (2,000) gallons per day. They shall operate automatically and shall discharge to separate disposal areas of equal size.

(b) Capacity. Dosing tanks shall have a capacity of liquid dose equal to the 1/6 to 1/8 of the septic tank in fifteen (15) minutes.

(c) Foundation. Dosing tanks shall be constructed on a level stable base that will not settle.

(d) Inlet and Outlet. The inlet shall be above maximum water elevation in the tank. The outlet shall conform with the requirements of the manufacturer of the dosing tank siphon.

(e) Manholes. Manholes shall be installed to provide access and to facilitate repair or adjustment of the siphon or pump in all dosing tanks. Manholes shall be brought up to ground surface.

(Appendix A)

3. Effluent Lift Pumps.

(a) PUMP

(i) Pumps shall be capable of passing a three-quarters (3/4) inch solid sphere, shall have a minimum one and one-quarter (1¼) inch discharge and shall be equipped with closed frame motors and switches.

(ii) Pumps may be oil filled submersible pumps or vertically-mounted column pumps.

(iii) Impellers shall be of cast-iron, bronze, or other corrosion-resistant metals.

(iv) Level control shall be by mercury float switch.

(b) PRESSURE LINE

(i) A gate valve shall be installed in the pressure line and a check valve shall be installed between the pump and the gate valve.

(ii) The pressure line shall be constructed of piping material of a bursting pressure of at least one-hundred (100) pis and shall be of corrosion-resistant material.

(iii) The pressure line should be bedded in three (3) inches of sand or pea gravel.

(iv) The discharge of the pressure line shall be baffled or otherwise controlled to ensure even distribution of effluent to the drain lines.

(c) PUMP SUMP

(i) The sump shall be constructed of corrosion-resistant material of sufficient strength to withstand the soil pressures related to the depth of the sump.

(ii) Total capacity of the sump shall be no less than fifty (50) gallons.

(iii) Sumps shall be provided with a maintenance access manhole at the ground surface or above and of at least twenty-two (22) inches diameter with a durable cover.

4. Distribution Boxes.

(a) Outlet elevations. The invert elevation of all outlets shall be the same, and shall be at least two (2) inches below the inlet invert.

(b) Sump. The distribution box shall be provided with a sump extending four (4) inches below the bottom of the outlet pipe.

(c) Size. The minimum inside horizontal dimensions measured at the bottom of the box shall be eight (8) inches and the box shall have a minimum inside bottom surface area of one hundred sixty (160) square inches. No distribution box shall be installed with a top outside surface area greater than the box outside surface area.

(d) Construction. Distribution boxes shall be constructed of concrete or other durable material approved by the Department. They shall be watertight and designed to accommodate the necessary distribution laterals.

(e) A distribution box shall be used on any slope over four (4) per cent.

(f) The invert of all outlets shall be level and the inlet invert shall be at least one (1) inch above the outlet inverts.

(g) Each connection to the distribution box shall service an equal length of perforated treatment field pipe.

(h) IMPORTANT: Distribution boxes, inspection boxes, flow dividers, etc., shall be placed on stable soil or material in order to prevent later misalignment do to shifting.

5. Diversion Valves:

(a) Construction. Diversion valves shall be of durable material and of design approved by the Department, shall be corrosion-resistant, and shall be water-tight and designed to accommodate the inlet and out-let pipes.

(b) Cover. Diversion valves shall show the manufacturer's name and address on the top and all manufacturers shall state, in writing, to the Department that the products to be distributed for use in absorption facilities within the county of Lewis & Clark will meet all the requirements of this section.

(c) Installation. The top of diversion valves shall be brought to finished grade to provide access to diversion mechanism. Access to diversion mechanism shall be pro-tected from readily accessible tampering.

6. Drop Boxes

(a) Sump. Sumps are optional.

(b) Size. Drop boxes shall be large enough to accommodate header pipe.

(c) Invert Elevations. Inlet and overflow pipe port inverts shall be at the same elevation. The invert of the header pipe port leading to the treatment trench shall be six (6) inches below inlet and overflow port inverts.

(d) Construction. Drop boxes shall be constructed of concrete or other durable material approved by the Department.

(e) Cover. Drop box covers shall bear the manufacturer's name and address.

(f) Premarketing Certification. Drop box manufacturers shall state in writing, to the Department, that the product(s) to be distributed for use in Lewis & Clark County will meet all requirements of this section.

FIGURE 1.

TYPICAL SEWAGE DISPOSAL SYSTEM LAYOUT

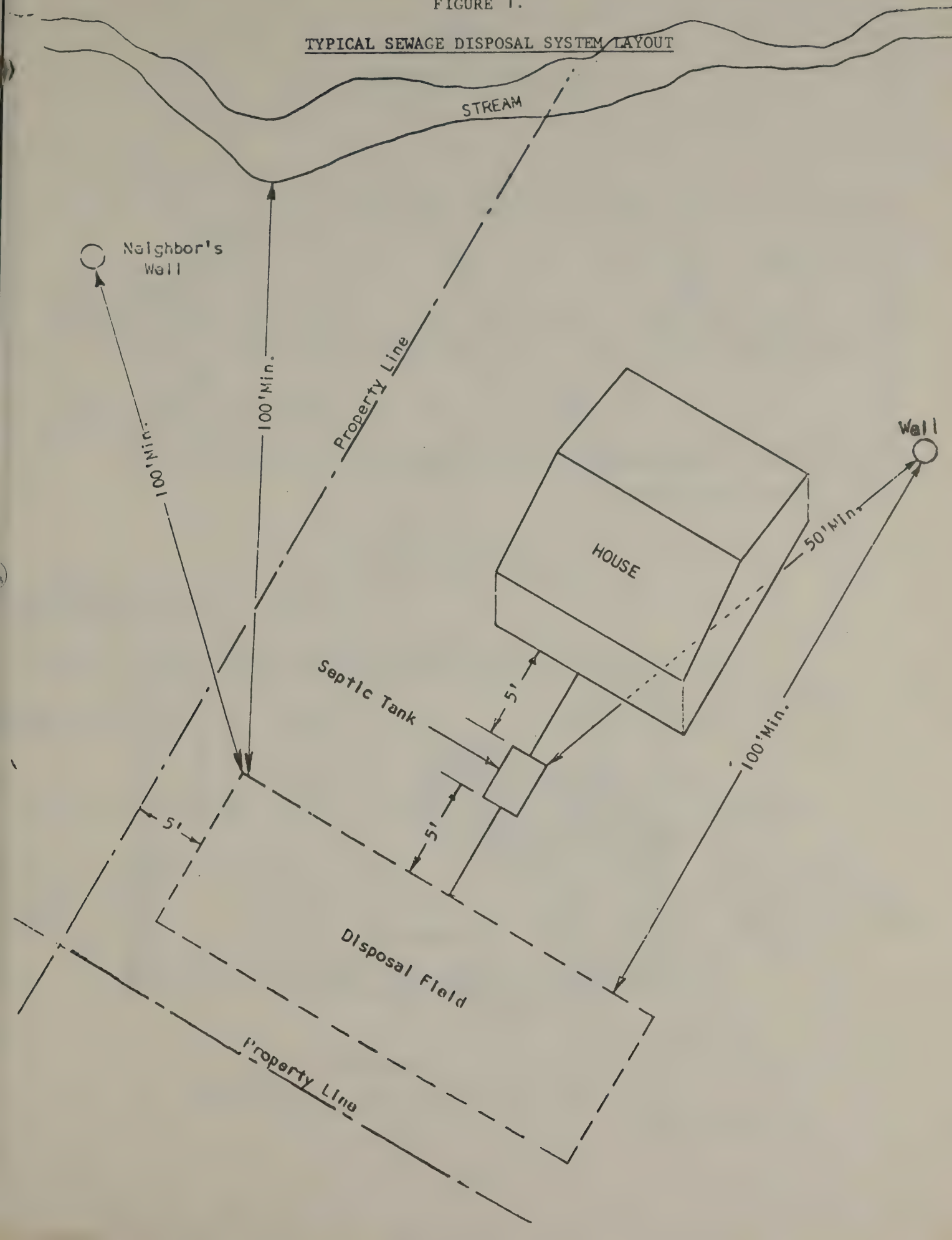
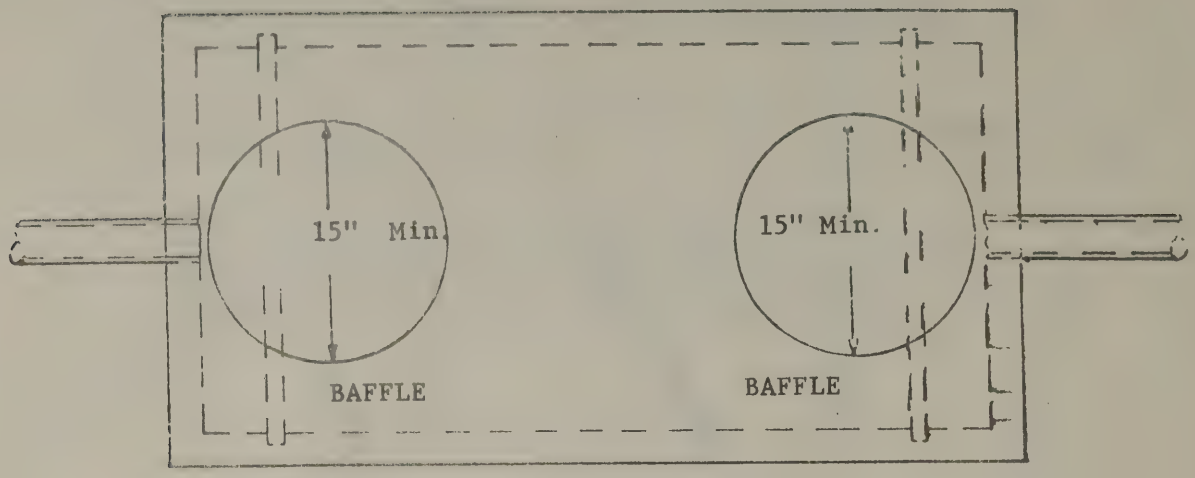


FIGURE 2

SEPTIC TANK DESIGN DETAILS



PLAN

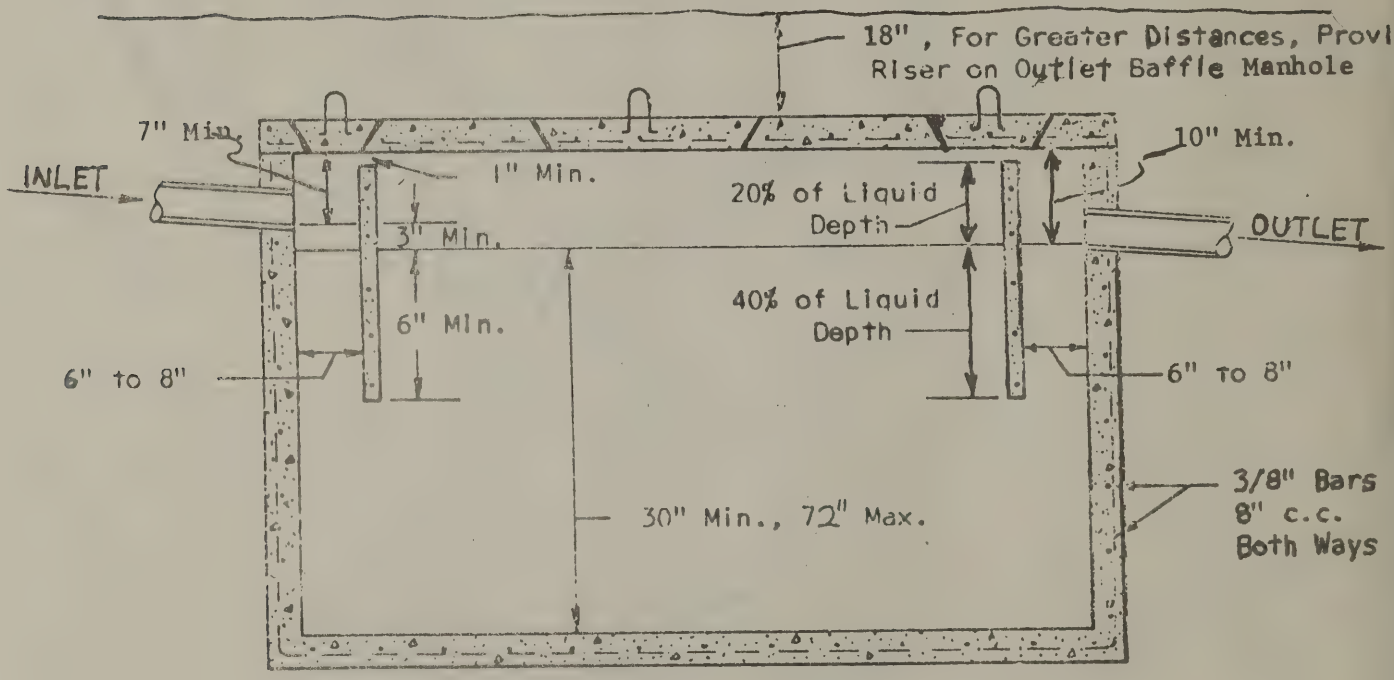
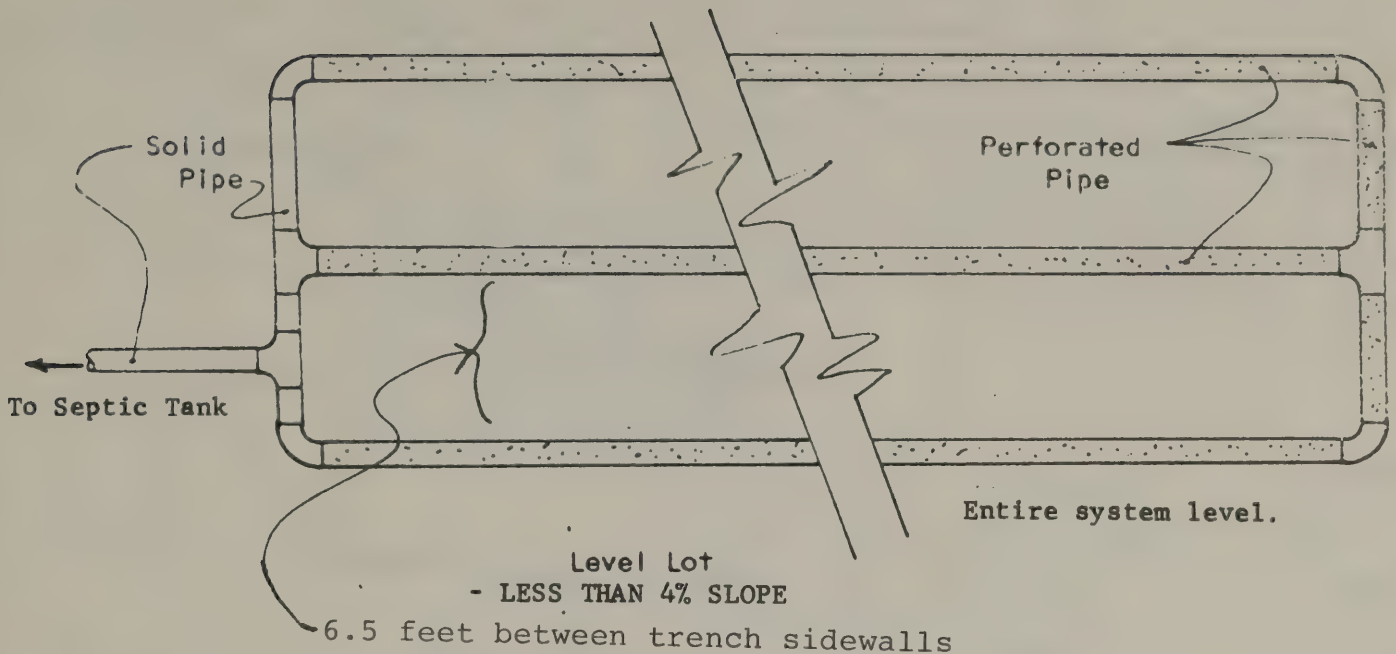


FIGURE 3

TREATMENT FIELD LAYOUT



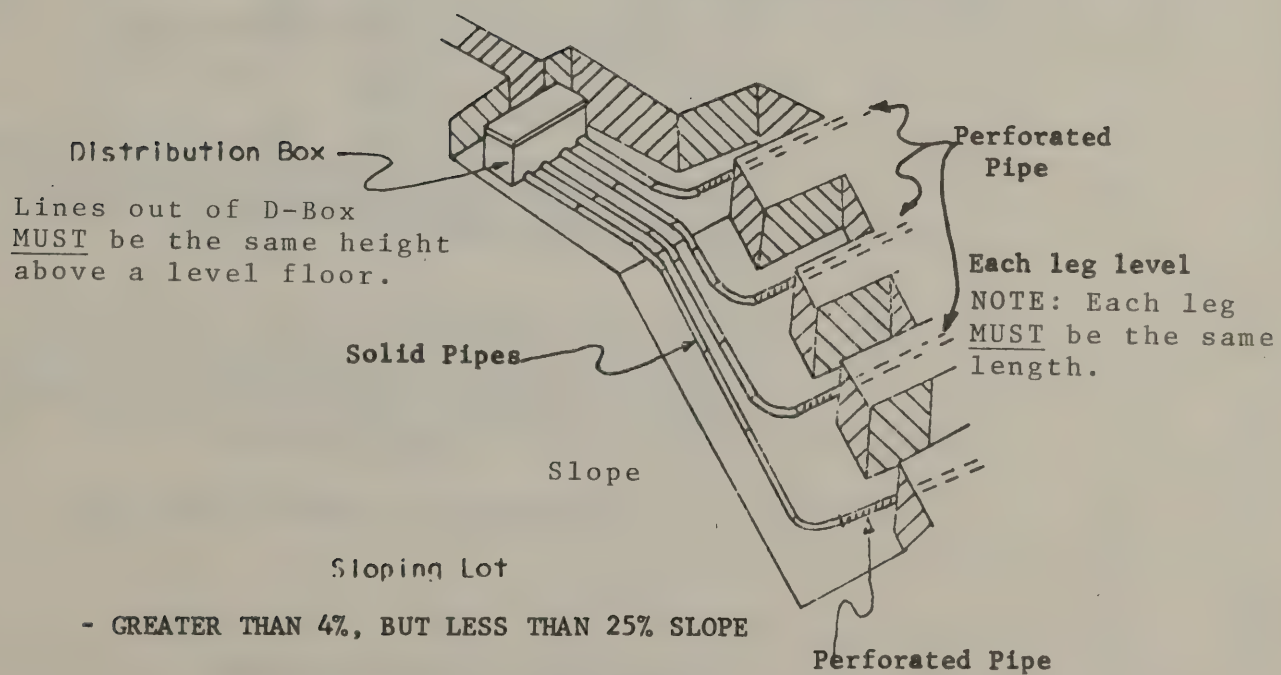
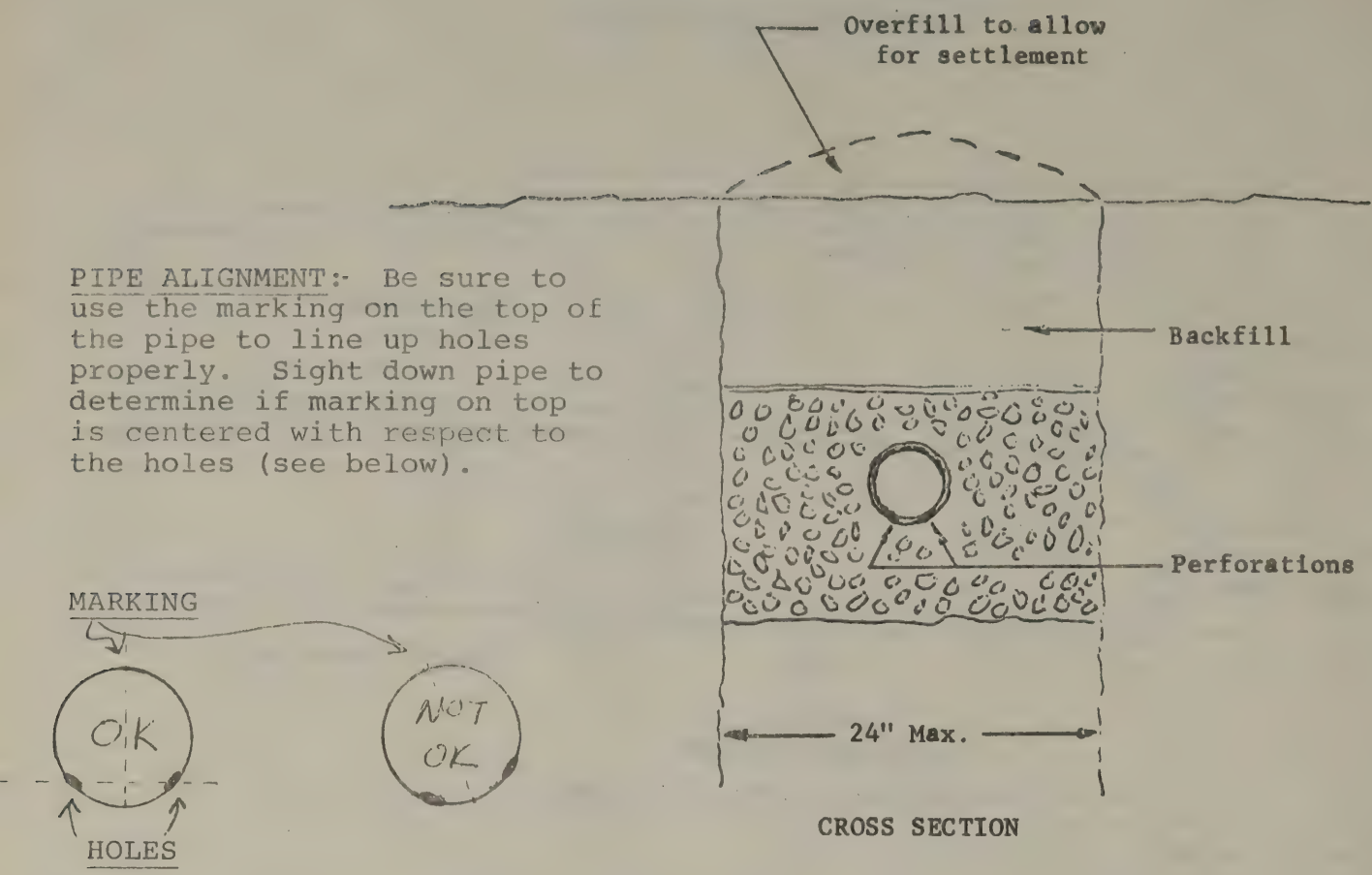
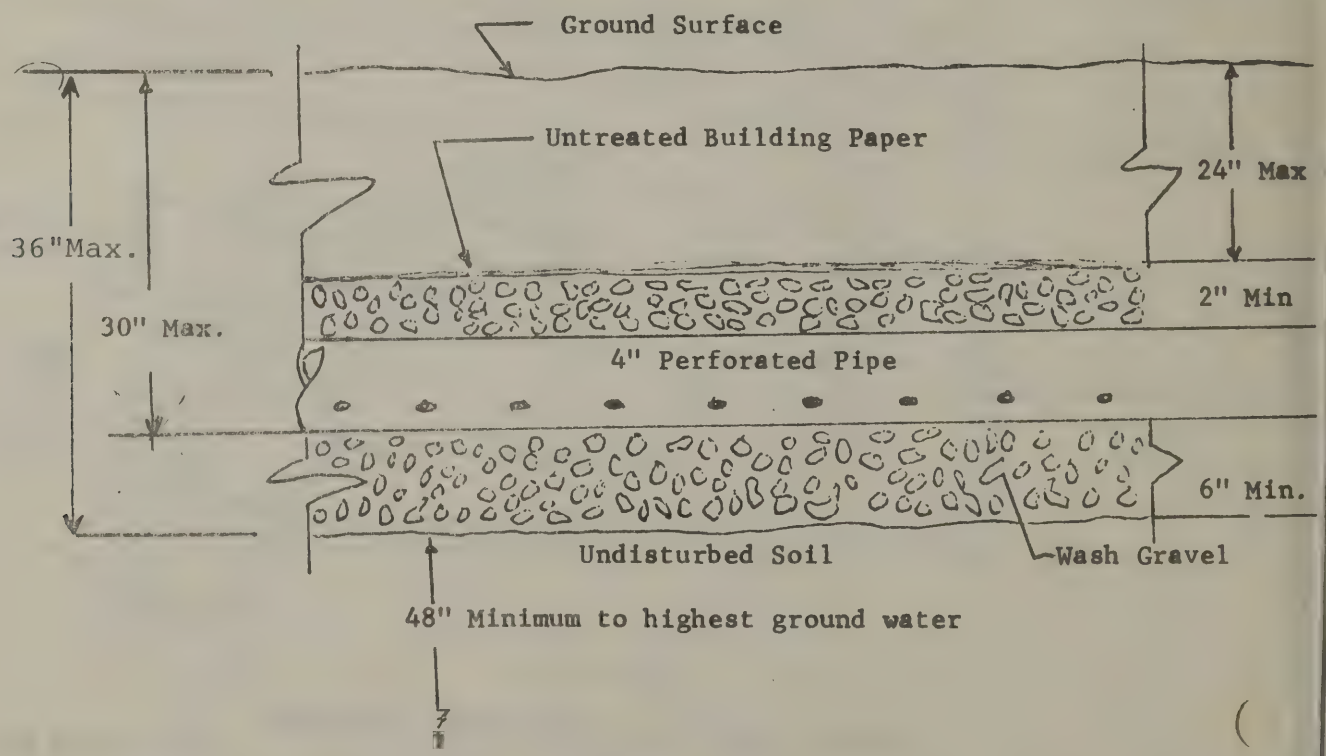

Distribution Box
Lines out of D-Box MUST be the same height above a level floor.
Perforated Pipe
Each leg level
NOTE: Each leg MUST be the same length.
Solid Pipes
Slope
Sloping Lot
- GREATER THAN 4%, BUT LESS THAN 25% SLOPE
Perforated Pipe

FIGURE 4

ABSORPTION TRENCH DETAIL

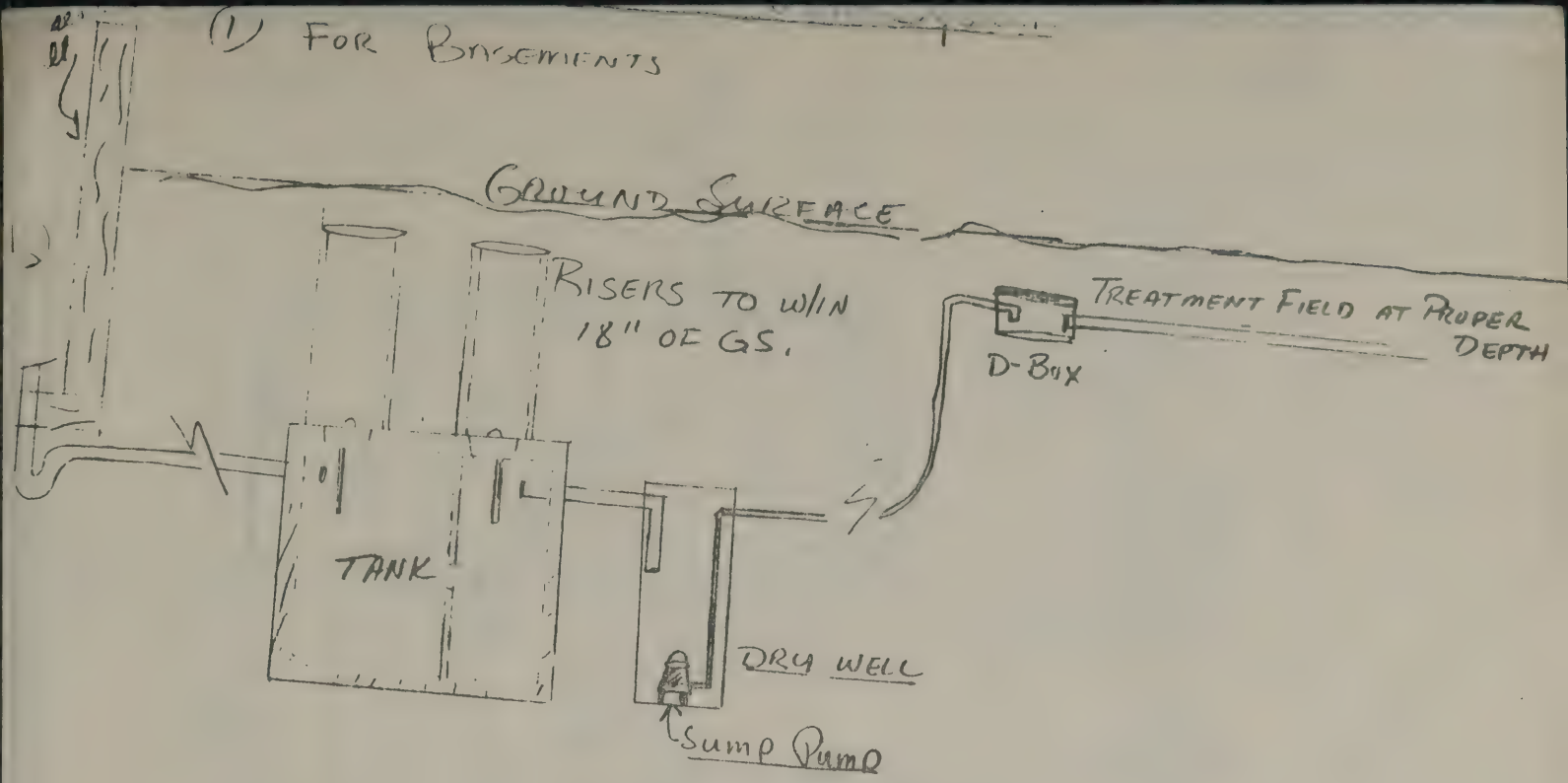


PIPE ALIGNMENT:- Be sure to use the marking on the top of the pipe to line up holes properly. Sight down pipe to determine if marking on top is centered with respect to the holes (see below).



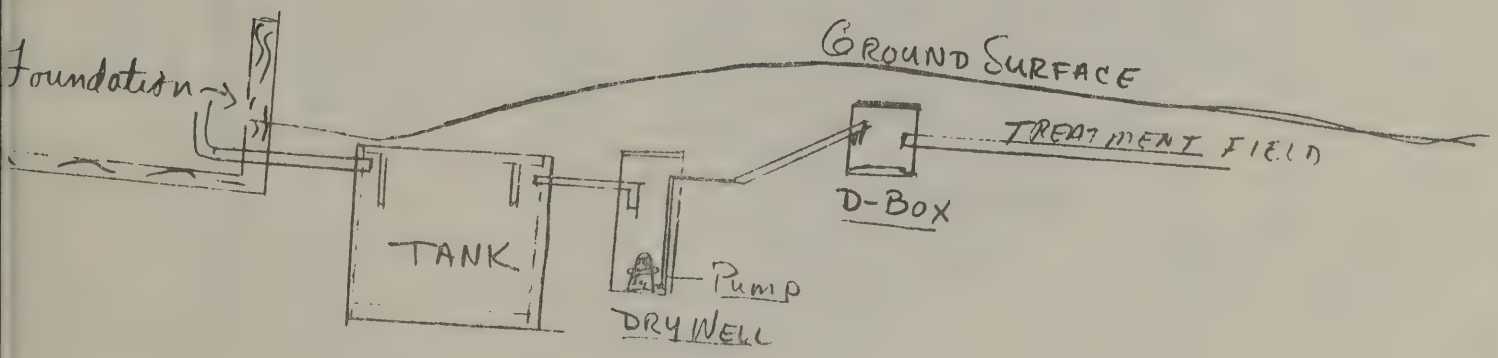
LONGITUDINAL SECTION OF TRENCH

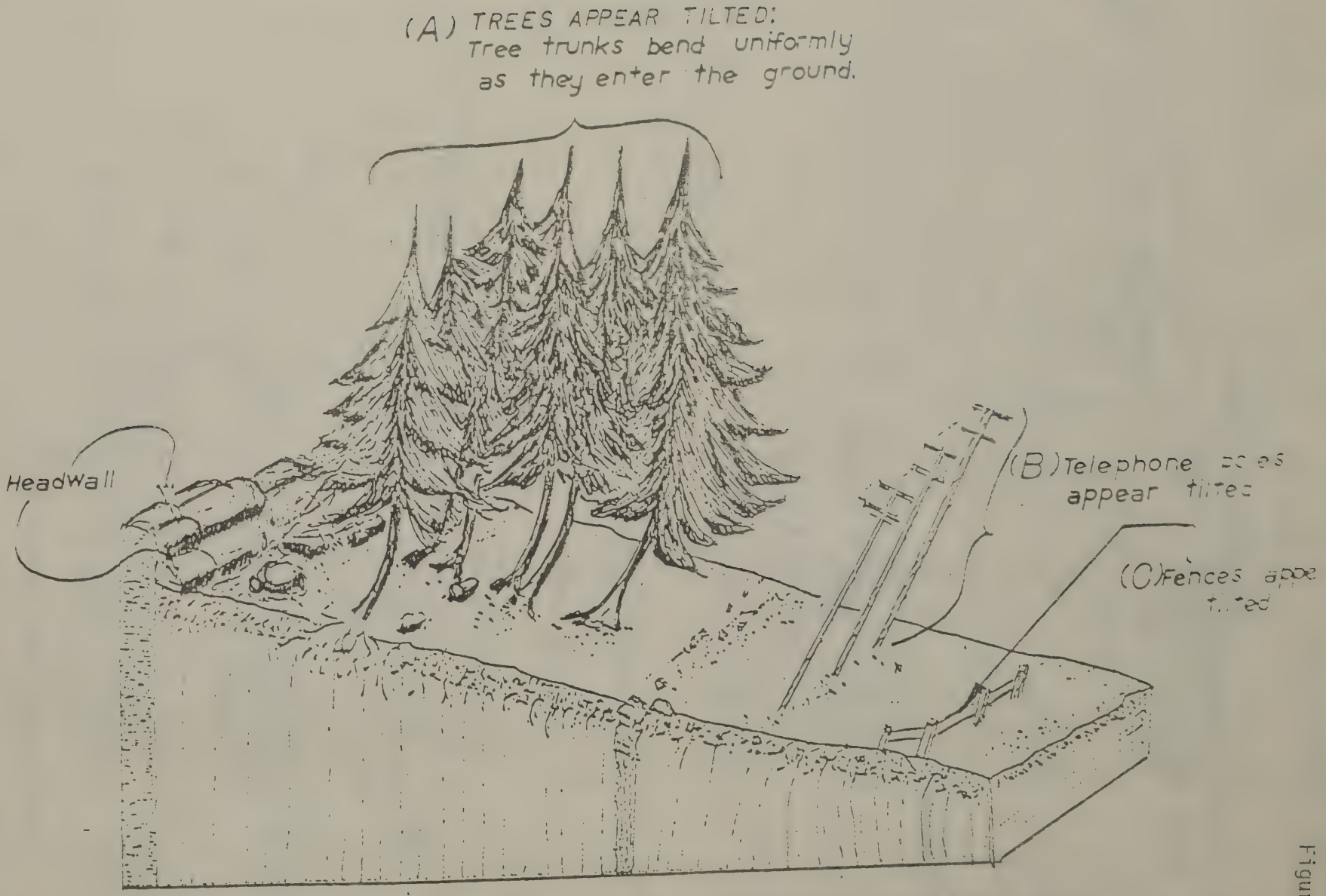
(1) FOR BASEMENTS



(For illustrative purposes only)

2. TO MOVE SEWAGE TO HIGHER GROUND



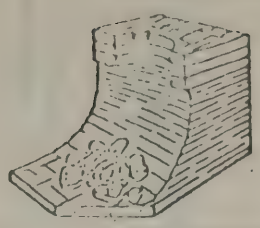
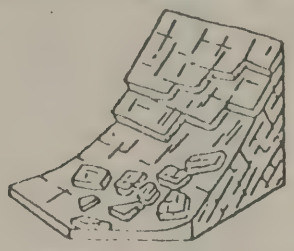
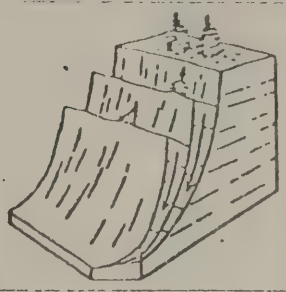


IDEALIZED CROSS SECTION OF UNSTABLE LANDFORM

Illustrates Definitions (48) and (91); (71-020)(2)(f)
Diagram 4A

Figure 6.

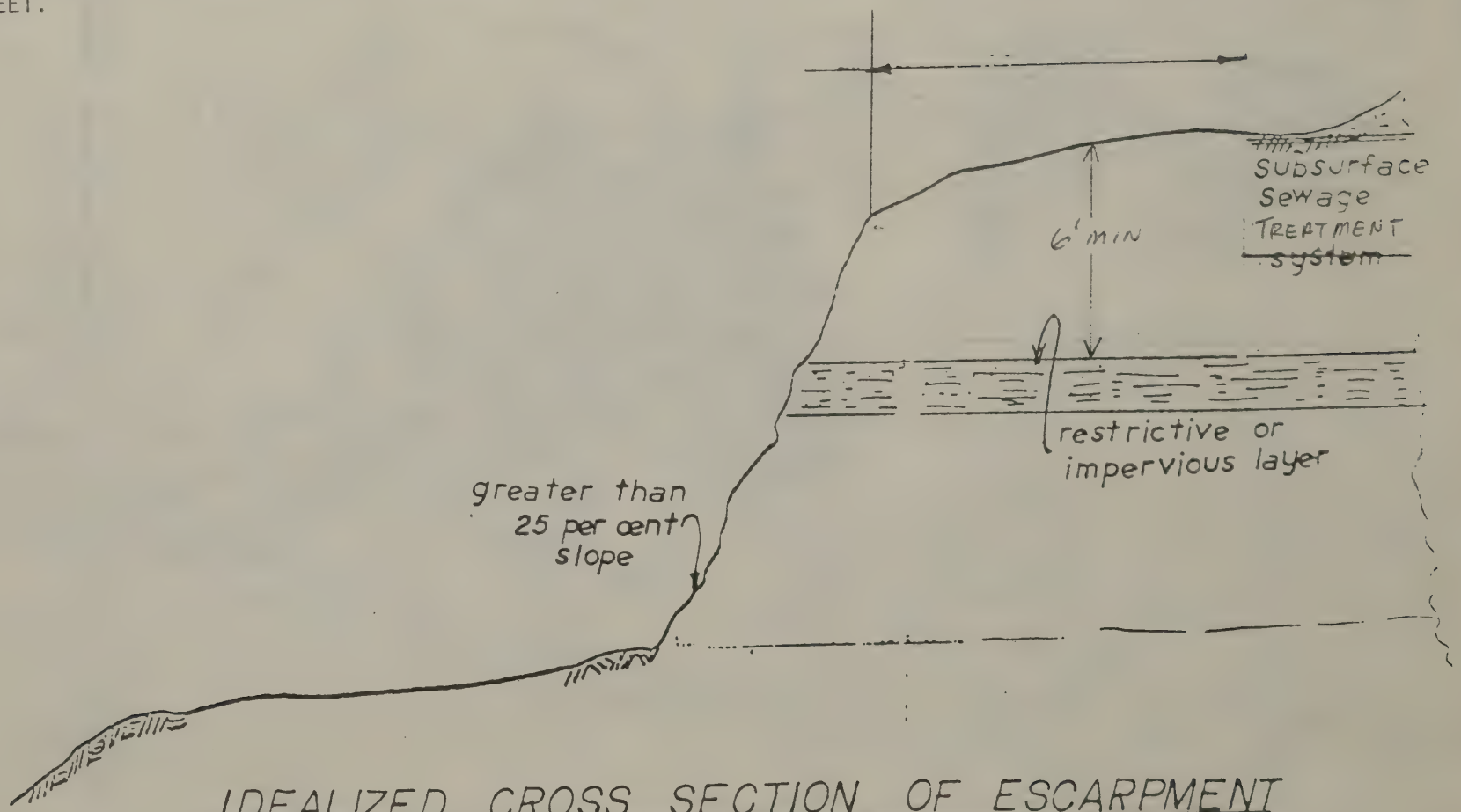
Figure 7.

Process	Definition and Characteristics	Illustration
Rockfall and debris fall	The rapid descent of a rock mass, vertically from a cliff or by leaps down a slope. The chief means by which talluses are maintained.	
Rockslide and debris slide	The rapid, sliding descent of a rock mass down a slope. Commonly forms heaps and confused, irregular masses of rubble.	
Slump	The downward slipping of a coherent body of rock or regolith along a curved surface of rupture. The original surface of the slumped mass, and any flat lying planes in it, become rotated as they slide downward. The movement creates a scarp facing downslope.	
Debris flow	The rapid downslope plastic flow of a mass of debris. Commonly forms an apronlike or tonguelike area, with a very irregular surface. In some cases begins with slump at head, and concentric ridges and transverse furrows in surface of the tongueliye part.	
Variety: Mudflow	A debris flow in which the consistency of the substance is that of mud; generally contains a large proportion of fine particles, and a large amount of water.	

IDEALIZED ILLUSTRATION OF UNSTABLE LANDFORMS

Illustrates Definition (91) ; (71-020)(2)(f)
Diagram 4c

SETBACKS (A) FROM ESCARPMENTS SHALL GENERALLY BE 25 FEET UNLESS THE SLOPE IS GREATER THAN 25% AND AN IMPERVIOUS LAYER EXISTS BETWEEN 6 AND 10 FEET. (SOILS SHALL BE CONSIDERED WHEN MAKING FINAL DETERMINATION) IN WHICH CASE THE SEPARATION SHALL BE 50 FEET.

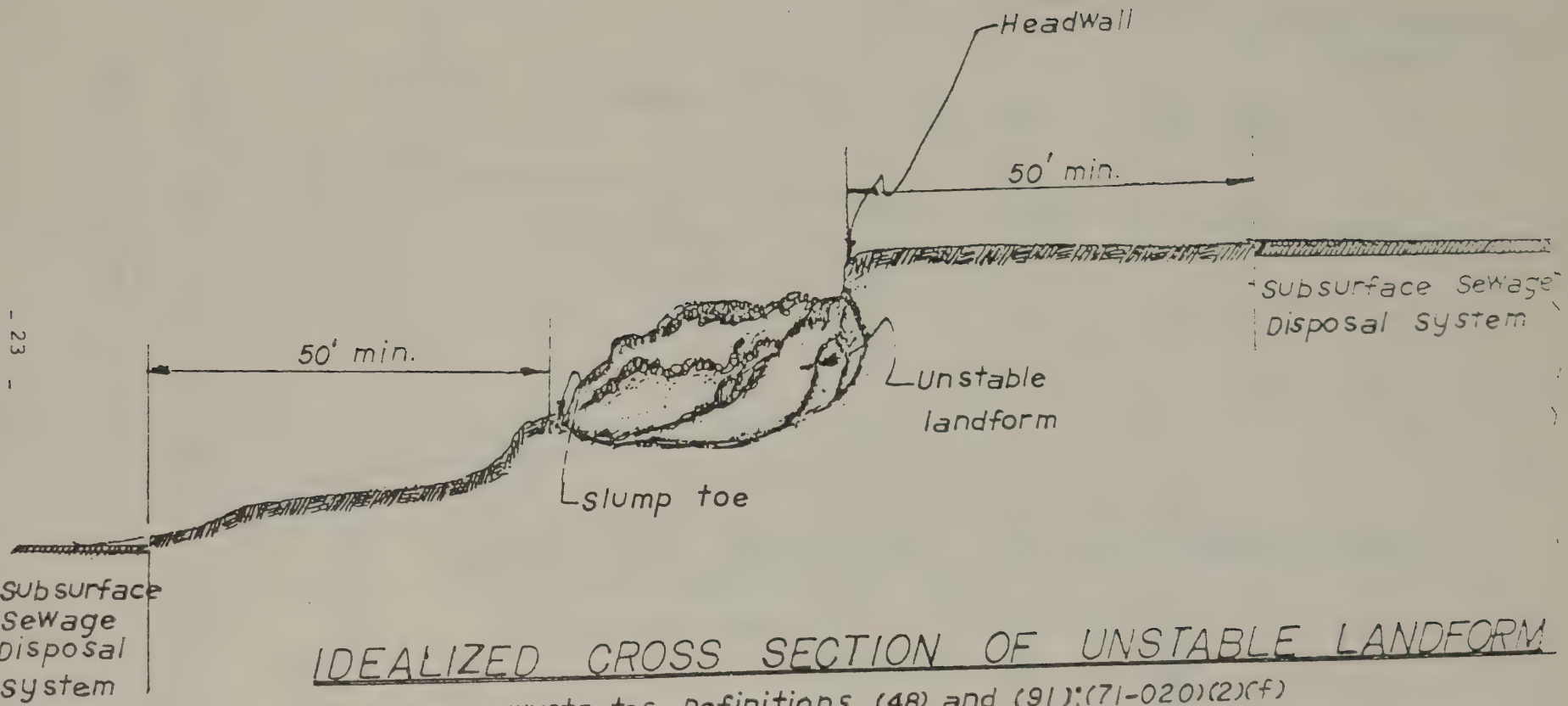


IDEALIZED CROSS SECTION OF ESCARPMENT

(Showing Restrictive or Impervious layer)

Figure 8.

NOTE: NOT TO SCALE



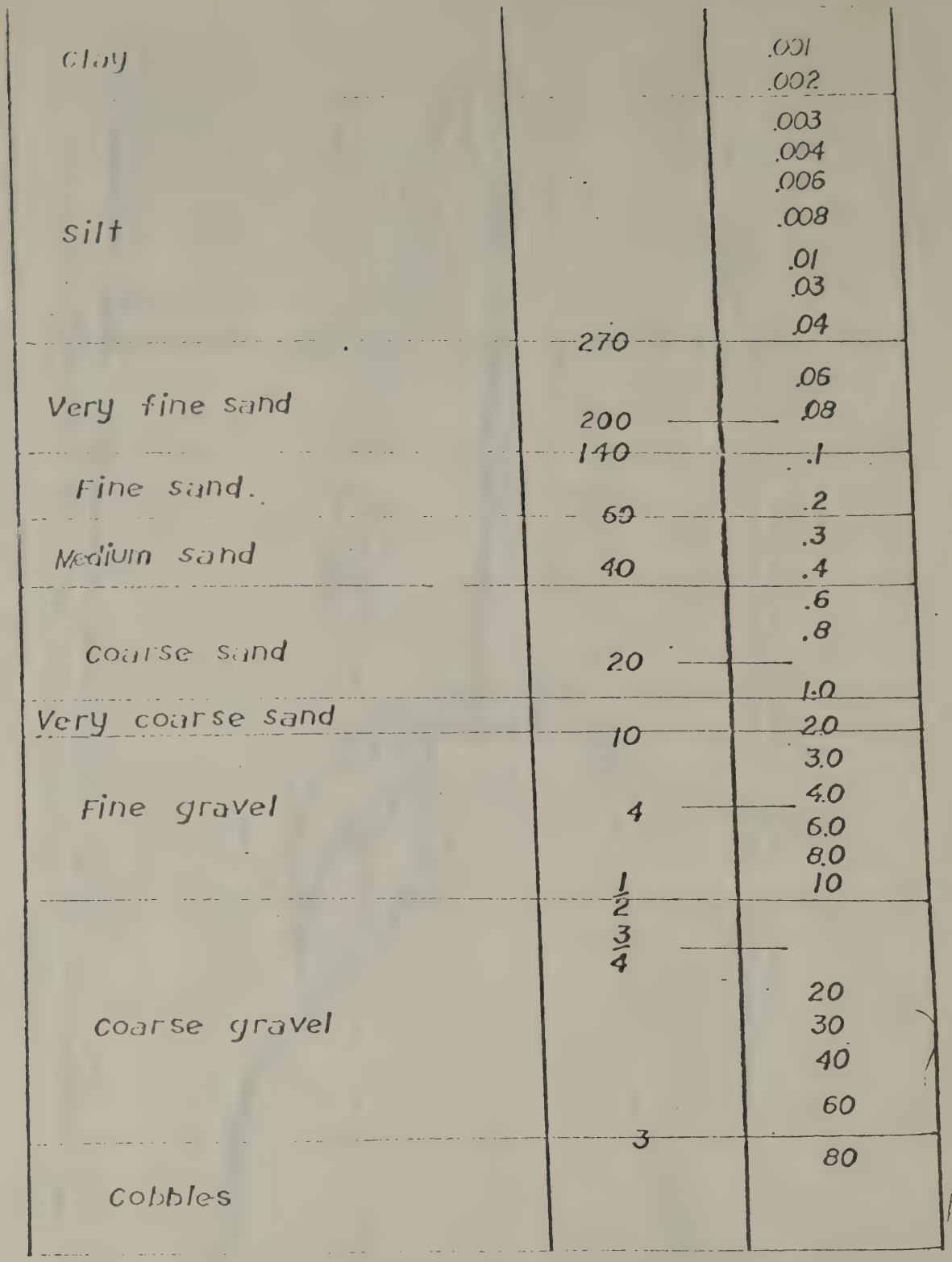
IDEALIZED CROSS SECTION OF UNSTABLE LANDFORM

Illustrates Definitions (48) and (91); (71-020)(2)(f)

Diagram 4B

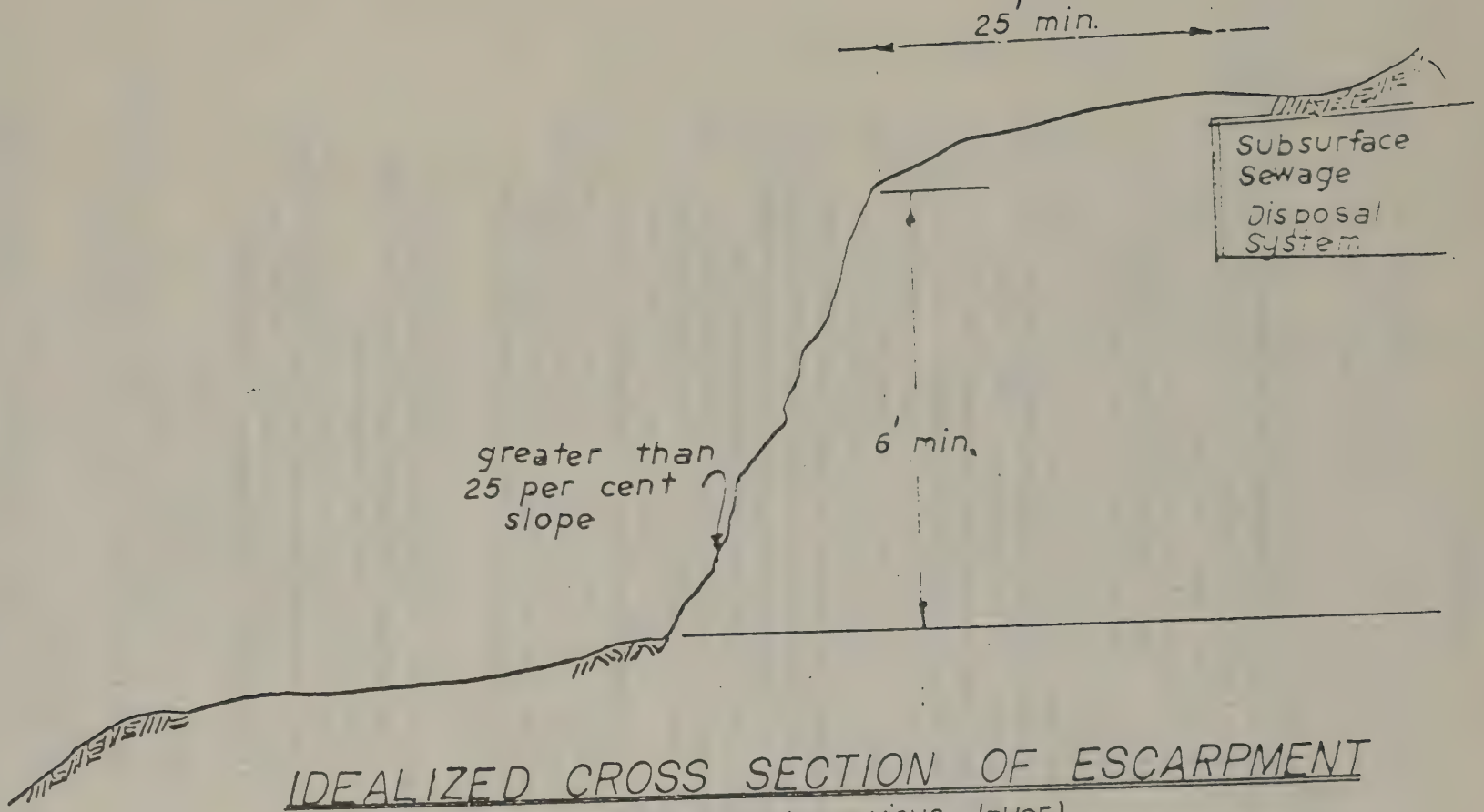
NOT TO SCALE

Mesh Sizes Millimeters Figure 10



USDA SOIL CLASSIFICATION SIZES OF SOIL SEPARAT

Table 1
Illustrates Definition (82)



IDEALIZED CROSS SECTION OF ESCARPMENT

(Without Restrictive or Impervious layer)

Illustrates Definition (34); (71-020)(2)(g) 2.

Diagram 3B

NOTE: NOT TO SCALE

APPENDIX C

EXPERIMENTAL SYSTEMS

Prior to issuance of an experimental system permit, the applicant shall fulfill the following list of experimental system permit responsibilities.

1. A fee of $ shall be paid prior to further evaluation of the experimental system permit application.

2. Site approval: Minimum site conditions as established by this Department shall be met. A list of these conditions or requirements shall be supplied to the applicant.

3. All submitted plans or system designs shall bear the seal and signature of a QUALIFIED professional engineer, or QUALIFIED registered sanitarian, other than sanitarians currently working for the Department. The system engineer or sanitarian cannot be an employee of the Department. The signator of the system must supply current registration number and date of renewal. (A list of system design guidelines may be obtained from the Environmental Health Division.)

4. A complete plan of operation and maintenance is to be included with the experimental system submittal.

5. A complete plan for monitoring the performance of the system shall be developed consistent with the following information requirements.

   (a) Total sewage flow - daily recordings for one week of each month and weekly recordings for the remaining three weeks of each month.

   (b) Monthly precipitation.

   (c) Water levels within the system, where applicable.

   (d) Temperatures.

   (e) Soils analysis of site from A, B, C, horizons before installation of system and one (1) year after operation.

   (f) Groundwater quality tests of <u>once per</u> month for:

(i) Nitrates.

(ii) Dissolved solids.

(g) Biological mat formation inspection and analysis test once every four (4) months.

(h) Other information may be deemed necessary to evaluate a system functioning, but will depend upon the design of the experimental system.

6. Monitoring and testing all experimental systems shall be done for three (3) year periods. Only operation and maintenance activities shall continue after that period.

7. It shall be the responsibility of the applicant to bear 100% of the cost of the design, construction, maintenance, operation and repair of any experimental system except where EPA funds may be available.

8. Applicant shall enter into a contractual agreement with the Environmental Health Division to cover the monitoring costs. The shared costs shall include expense of all trips to the site for the purpose of collecting data, sample analysis, and/or any other special monitoring activities stipulated in the Agreement.

9. At the end of the three (3) year study period, all data will be correlated in order to determine the effectiveness of the experimental system as it relates to the following goals.

(a) Proper treatment of sewage wastes.

(b) Proper disposal of sewage wastes.

(c) No public health hazards existing.

(d) No obvious deficiencies which would give the system a potential for:

(i) Future mechanical or physical failure; plugging, etc.

(ii) A public health hazard.

(e) Energy efficient.

A determination of what results will constitute a success or failure for each of the criteria will be established prior to system approval. A favorable evaluation of these factors will constitute the foundation to begin implementaion of regulations allowing installation of such systems on a standard basis. Such systems would remain under scrutiny for such factors as short life span, load problems, etc.

10. Legal responsibility. Issuance of an experimental system permit in no way constitutes a guarantee by the Environmental Health Division for

(Appendix C)

the successful operation or performance of the system. The Department will hold the applicant responsible for correction of any problems which may arise during the life of the system.

11. Prior to approval of an experimental system, an alternative method of sewage treatment must be designed and approved so that in the event of a failure in the initial experimental system, a potential health hazard will not be created.

APPENDIX D

PROPER CARE & TREATMENT OF YOUR OWN TREATMENT SYSTEM

If you are the owner of a subsurface sewage treatment/system (in more common terms; a septic tank and drainfield), perhaps the following may be of interest.

Throughout the year, this Department gets requests such as:

What do I need to dispose (many people are unaware of the need for treatment) of my sewage? Or, what makes my sewage treatment system work properly? Or, what public health hazards and nuisances are connected with a private sewage treatment system? And, also, how do I get a permit for a system?

The following comments will, I hope, adequately address these common areas of concern.

Whenever you have either blackwater (sewage) or greywater (from sinks, showers, etc.) you will need the following to properly treat and dispose of the wastewater.

1. Sufficient ground area for the treatment field with:

   a) Acceptable soils (give us a call and we will explain soils).

   b) No bedrock within six (6) feet of nutural ground surface.

   c) No ground water within six (6) feet of natural ground surface.

2. A large well-constructed tank to hold the wastewater.

After a sewage treatment system has been installed and assuming the site was evaluated properly, you can expect the system to function properly if the following Do's and Do Not's are considered:

1. Have the tank pumped regularly, once a year is a good idea, but no more than three (3) years should go by without pumping the tank.

2. Plant vegetation over the area, use plants which will not form deep roots that will clog the treatment field.

3. Do not use excessive amounts of drain cleaners. They tend to dissolve the solids in the tank allowing them to move into and plug the treatment field.

4. Do not use excessive amounts of water. Solids may then be carried to the treatment field, thus causing plugging, or the trench will go anaerobic (breakdown of the waste material without using oxygen). If this occurs, a heavy mat will form, leading to premature failure of the system due to plugging.

5. Do not put large amounts of grease into a septic system. It will not handle it, so don't expect it to.

(Appendix D)

6. Do not use excessive amounts of chemicals, such as those used in photography dark rooms, or a shop where industrial cleaners are used.

7. Do not drive over the treatment field, build on it or do anything that may disrupt the peaceful functioning of the system.

8. Do not connect a water softener into a septic system because the chemicals (sodium ions) washed out will damage soil structure. A separate system or a sump should be used to handle backwash from a water softener.

Applying the above Do's and Do Not's should allow the system to function properly. A system is functioning properly when most of the water from the system moves upward into the atmosphere. For this to happen, the soil type must not be too coarse or too fine. In this way, most bacteria, viruses, and chemicals will be removed.

CONCERNING THE PUBLIC HEALTH HAZARDS OF A SUBSURFACE TREATMENT SYSTEM

If the site was evaluated properly, the system installed, operated, and maintained properly, the public health hazard will, in most cases, be non-existent. If these conditions are not met, the health hazard can be very serious in terms of polluted water, or surfacing sewage.

Since a permit to install a sewage treatment system is required under Lewis & Clark County Regulations, persons interested in obtaining a permit should contact the Environmental Health Division of the City-County Health Department, 201 South Last Chance Gulch, or phone 442-6230. Further questions concerning ideas and material presented in this article could be answered by writing or calling the above.

APPENDIX E

1. Application for certification shall be in writing and shall contain the name, address, and phone number of the applicant. Applications shall be submitted prior to a test date; dates to be announced from time to time throughout the year. A fee of fifty ($50) dollars will be collected at the time the applicant takes the exam and shall be non-refundable.

2. Each certification shall expire annually on December 31st. The installer will have until January 31st to renew the certification. If the certification is not renewed by January 31st, the certification will be cancelled. To renew the certification, the installer shall pay a renewal fee and successfully pass a short test, designed to maintain the installer's knowledge of current county regulations and new technology. (Refer to fee schedule).

3. From time to time, the Health Authority may require attendance at work shops held for certified installers or applicants in order to update their knowledge of current county regulations and most current technology.

4. Every certified installer shall maintain and submit to the Board of Health, such data and records as may be required for determining compliance with these regulations.

(a) Every certified installer shall post the green tag at the construction site prior to initiation of construction.

(b) Notification of the expected completion date and hour must be given twenty-four (24) hours in advance. Care should be taken to insure that the system is completed before the deadline for inspection. Incomplete system will result in a re-inspection at the convenience of the Department.

(c) In the event the Health Authority inspects the system, the green tag will be signed and the certified installer need not send in the completed short form. If the green tag has not been signed, then the certified installer must send in the short form within ten (10) days of the call for inspection.

5. Certifications shall be suspended by the supervising Health Authority for failure to hold to the intent of the program. Reinstatement shall be at the discretion of the Board of Health. A request to appear before the Board of Health must be in writing and be submitted one week prior to the monthly Board of Health meeting. Notice of suspension shall be sent by certified mail. Items which will constitute a violation (any three (3) of which will be grounds for suspension):

(a) Failure to make twenty-four (24) hour notice.

(b) Covering a system before the twenty-four (24) hour notice is up.

(c) Improper installation of system.

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(d) Starting work before a permit has been issued.

(e) Failure to complete short forms.

(f) Submittal of incomplete applications.

6. The Board of Health shall have sole discretion regarding any changes in final revocation of certification.

7. Systems installed by the certified installer may be inspected at discretion of the Health Authority. In the event the department feels a system installed by a certified installer should be inspected, he may request the certified installer to leave the system open until an inspection is made.